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Founded by Henry E. Sigerist

Editor—Owsei Temkin

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ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Editor—OWSEI TEMKIN

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ON THE HUNDREDTH ANNIVERSARY OF JULIUS PAGEL'S BIRTH 29 MAY 1851

HENRY E. SIGERIST

Walter Pagel is perfectly correct when he says that his father was one of the foremost exponents of what he calls the second generation of modern medical historians. It was a great generation, indeed. Karl Sudhoff, born two years after Pagel, belongs to it and so does Max Neuburger although he was born later, in 1868, but he belongs to it nevertheless as he entered the field at a younger age. These men were largely responsible for the fact that the center of medico-historical research was shifted from France to the German-speaking countries in the beginning of our century. Pagel was the senior of the three, not only in age but also in academic appointment as he became *Privatdozent* at the University of Berlin in 1891. Neuburger followed, at the University of Vienna, in 1898 and Sudhoff joined the faculty of the University of Leipzig in 1905 at the age of fifty-two.

Today, one-hundred years after Pagel's birth, almost forty years after his death, we may be justified in asking what his work has meant to us, historians of the third generation who did not know him personally but were young students in medical school at the time of his death. In a deeper sense this raises the question: what survives of a historian's work?

It seems to me that we can divide a scholar's contributions into four main categories. Of the first I need not say much as it is ephemeral by nature. We all have to write obituaries, tributes to colleagues, short notes commemorating men and events, a preface to oblige a friend, an editorial in a journal, or occasional articles for the newspapers. These contributions written *für den Tagesbedarf* as Sudhoff once called them, " for the requirement of the day," need not be worthless. If they are well written and express a personal view or thought they may be of lasting interest—at least some of them—and they are all documents of their time. We cannot escape writing them in a young field of studies that has so very few specialists. Musicians need not be reminded of the significance of Mozart or Beethoven but physicians do of that of Sydenham and Laennec. Pagel wrote many such articles, wrote them well, reached a wide audience and thus for over twenty years greatly contributed to making physicians aware of their past.

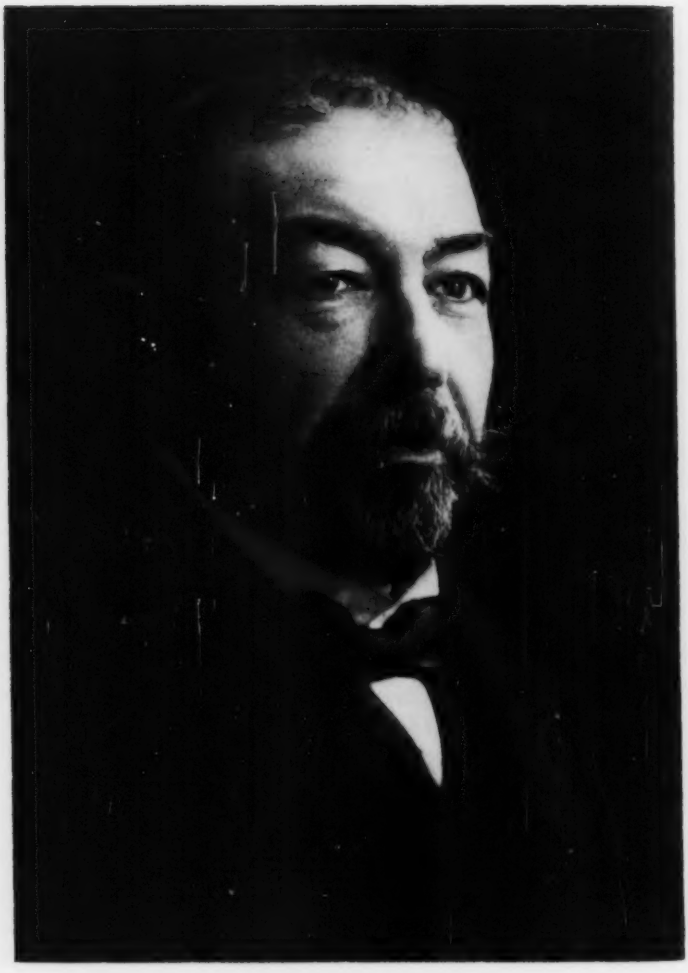
When as a student I became interested in medical history the first edition of Pagel's *Einführung in die Geschichte der Medizin* which ever since 1898 had been *the* textbook of the subject for all German-speaking students, was out of print and was available to us only in the second edition that had been revised by Karl Sudhoff. It was still Pagel's book as Sudhoff had made relatively few changes, and it still had the very attractive form of lectures, a literary genre which has almost entirely disappeared and which I liked very much as it forcefully conveyed the personality of the academic teacher to readers who had not had the good fortune to listen to him. It is always difficult to have a textbook revised by some one else, particularly when author and editor are men with a " totally different mental structure " as Sudhoff admitted in his preface. The hybrid character of the book was still more pronounced in the third and fourth editions of 1922. It is still a most valuable book, valuable for Pagel's as well as for Sudhoff's contributions. The medical historians of my generation grew up with it, derived inspiration and knowledge from it. I keep it next to my desk and always consult it when I wish to know what the status of a problem was in 1922 and what basic literature existed on the subject. As a whole, I think the book has served its time as every such book does after a while because research brings forth new facts and because every history book reflects the historical and philosophical concepts of its period. It becomes absorbed and assimilated. If we are able to write medical history today it is to no small extent because we have assimilated just such books as Pagel's history was. I think what

I said applies also to the large *Handbuch der Geschichte der Medizin* that Puschmann founded, Neuburger and Pagel edited. With all its inadequacies—which were unavoidable in those days—it gave a grandiose panorama of medical history and many sections of the book may still be consulted with profit.

Every historian's work, furthermore, includes a third category of contributions which consists of research materials and tools, of texts made available, described and analysed, of bibliographies and other reference books. This usually is the part of a historian's work that lives longest. Kühn's edition of Galen and Littré's edition and translation of Hippocrates after more than a century are still used daily by researchers in the field. Haller's *Bibliothecae* written nearly two centuries ago are tools of research that we would not miss. Pagel made many very important contributions along that line. A distinguished Latinist and mediaevalist, he published, himself and through his students, a number of mediaeval medical texts from the manuscripts and today no one can work on such physicians and surgeons as Henricus de Mondeville, Wilhelmus de Congeina, Johannes de Sancto Amando, Gualterius Agulinus, on Mesue and others without consulting Pagel's and his school's editions and translations. In addition to this, he published bibliographical and biographical books of great value which are in constant use today. His *Historisch-Medizinische Bibliographie für die Jahre 1875-1896* (Berlin, 1898) is perhaps not sufficiently known, yet is very important as it precedes the *Mitteilungen zur Geschichte der Medizin und der Naturwissenschaften* and *Isis* by many years and covers a period that produced a great deal in our field of studies. I use the book frequently and find it most convenient as I also do Pagel's annual survey of medico-historical literature published from 1899 on in Virchow's *Jahresbericht für die gesamte Medizin.* In the biographical field Pagel's *Biographisches Lexikon hervorragender Aerzte des neunzehnten Jahrhunderts* (Berlin-Vienna, 1901) with its very good historical introduction has become a standard reference book.

Thus it was a well-rounded rich life's work that Julius Pagel left behind when he died in 1912. But there is one more, a fourth category of contributions that the historian who is an academic teacher passes on to posterity, one that cannot be expressed in figures and cannot be listed in bibliographies, but is very real, very tangible nevertheless, namely the inspiration he gives his students and the enthusiasm he arouses in them. My first history teacher was a disciple of Jakob Burckhardt. The spirit of the master was alive in him and the sparks were strong enough to kindle the

fire in us young high-school boys. Many students from many lands attended Pagel's courses at the University of Berlin and not a few of them, in Europe and America, became keen students of medical history and collectors of medical books. Foremost among the men who carry on in his spirit is his own son, today one of England's most distinguished pathological anatomists and medical historians whose highly original studies on Van Helmont and Harvey are well known to the readers of this *Bulletin*, Walter Pagel, who is better qualified than any one else to recall the memory of his great father, Julius Pagel.



JULIUS LEOPOLD PAGEL
anno aetatis suae LX
(1911)

JULIUS PAGEL AND THE SIGNIFICANCE OF MEDICAL HISTORY FOR MEDICINE

WALTER PAGEL

I.

May 29th, 1951 is the hundredth anniversary of Julius Leopold Pagel's birth. The story of his life has been told on several occasions.[1] In the present memoir it will suffice to say that he was the foremost exponent of what may be called the second generation of modern medical historians. The first generation comprises the "romantic" writers such as Friedländer, Lessing, Preu, Quitzmann, Leupold, etc. on one hand and Sprengel and Haeser on the other. Besides these, Hecker, Choulant, Rosenbaum, Littré, Daremberg, Adams, Gurlt, Baas, Hirsch, Puschmann and Proksch must be mentioned. Some of these had been full-time academic teachers. The following generation, however, acquired recognition of their subject less easily. Only after many years of struggle and after the first world war were full professorships for medical history re-established. The reasons for this delay have been set out in a number of recent papers which should be consulted.[2] Julius Pagel died on January 31st, 1912, having been unestablished professor of medical history in Berlin for 20 years. At his time little encouragement was given to students of the subject by ministries, faculties, or public medical opinion. Yet Pagel had been a successful teacher. His lectures left a deep impression on those who attended—an impression that was recorded more than once.[3] We owe

[1] The best and most congenial of the Pagel obituaries came from the pen of Max Neuburger (*Wien. klin. Wchnschr.* 1912, XXV, 323, and *Deutsche med. Wchnschr.* 1912, XXXVIII, 423). Others included those by K. Sudhoff (*München. med. Wchnschr.* 1912, No. 8), Iwan Bloch (*Klin.-therap. Wchnschr.* 1912, No. 7), Ludwig Geiger (*Allg. Ztg. d. Judentums* 1912, LXXVI, 172), Wilhelm Ebstein (*Janus* 1912, XVII, 73), W. Haberling (*Mitt. f. Gesch. d. Med. u. Naturwissensch.* 1912, p. 446/447), etc. A bibliography was compiled by Paul Richter, *Arch. f. Gesch. d. Med.* 1912, VI, 71. See also Albert Pagel in *Janus* 1926, XXX, 179, and the present writer on Julius Leopold Pagel in: *Victor Robinson Memorial Volume: Essays on the History of Medicine*, New York, Froben Press, 1948, pp. 273-297.

[2] O. Temkin, *Bull. Hist. Med.* 1946, XIX, 9. E. H. Ackerknecht, *Bull. Hist. Med.* 1947, XXI, 135. G. Rosen, *Bull. Hist. Med.* 1948, XXII, 594.

[3] W. Pagel, *loc. cit.*, p. 279 and 282. Professor Bruno Valentin communicated similar experiences to the present author.

the most graphic account to M. G. Seelig who describes a lecture course with Pagel in 1902.

> At the first meeting I was let into his study—a room, about twenty feet square, furnished more than severely plainly, and lined from floor to ceiling with open book shelves . . . with an introductory: "To-day we begin with the earliest times," he began to pace up and down the room, talking more rapidly than I had ever heard anyone talk before, in deep, well modulated, particularly pleasing, and yet withal, nervous staccato fashion, about pre-historic times. . . . His face which, in repose I had judged as mirroring the soul of the slow, plodding German student, lit up indescribably. The angles and lines of a particularly sharp Grecian nose seemed to soften, and a pair of distinctly slit-like eyes opened wide and fairly radiated enthusiasm. . . .[4]

It is quite true that Pagel's lectures on medical history proper were attended by few students.[5] Pagel shared this fate with the few other lecturers in medical history, then in office, notably with Sudhoff.[6]

But it was Pagel who first realised that in order to put history across to the medical student at large, a type of lecture had to be devised which was different from the usual courses for the advanced clinical student. Instead of the whole development of medicine or selected chapters from it, the elementary historical landmarks were to be presented to first year students. This seemed to be possible within the scope of an "Introduction" to the individual medical disciplines, starting with anatomy and concluding with one of the clinical specialties. In other words, Pagel took up the old idea[7] of lectures on "Encyclopedia and Methodology of

[4] Seelig's recollections were published in full by G. Dock, Julius Pagel and the Pagel Collection of Books on the History of Medicine in the Washington University Medical School, *J. Missouri State Med. Assoc.* 1913 (May issue), and *Bull. Med. Library Assoc.* N. Y. 1913, III, No. 2. An illustrated reproduction is found in Warner's Calendar of Medical History for 1941, pp. 390-394 (also by permission of Messrs. Wm. R. Warner and Co., in W. Pagel, *loc. cit.*, p. 279). Professor Dock secured Pagel's library for the Washington University at St. Louis where, as Dr. Seelig writes, it still forms one of the show spots. Its unique feature is an almost complete representation of the history of medical specialities, in addition to the collection of medical classics in best (though not necessarily first) editions.

[5] See Richard Koch, *Arch. f. Gesch. d. Med.* 1928, XX, 1, p. 4.

[6] Of the latter the story has it that when only one student turned up, Sudhoff started the lecture by addressing him with "Sir" ("Mein Herr") instead of the customary "Gentlemen ("Meine Herren"). At this time (up to 1912), therefore, teaching of medical history in Berlin was hardly "indicative of the influence exerted by Sudhoff and his institute at Leipzig" (G. Rosen, *loc. cit.*, p. 612), although this was the case later on, notably in the 1920's, under the impact of H. E. Sigerist's unparalleled success as teacher and director of studies.

[7] See H. E. Sigerist, *Internat. Beitr. z. Gesch. d. Med.* Festschrift z. 60. Geburtstage von Max Neuburger, Wien, 1928, 273, and *Einführung in die Medizin*, Leipzig, 1931;

Medicine" or, as it was later called: "Introduction to Medicine." So, for twenty years, packed audiences (including students of other faculties) were treated to the substance of medical history. It was here that they became acquainted with the names and main features of the "heroes" and also with the "discoveries." Each of these lectures was carefully prepared. This preparation included even the humoristic or anecdotal setting in which dry facts and dates could be made palatable. It is true that in these lectures, Pagel betrayed a tremendous admiration for the ancillary sciences and the part they had taken in the reaching of the climax at which medicine seemed to have arrived. However this may have impaired the view of medicine in its own right,[8] Pagel's account was of necessity impressive and memorable. He had personally witnessed the scientific development of medicine. It was substantial and convincing material which he was able to present to scientifically minded generations. There was nothing of the vague "Philosophy of Medicine" which in later years discredited rather than helped the propaganda for education in medical history.

The basic tenet of Pagel's educational activities was his belief in the "Usefulness of Medical History for Medicine."[9] This was in line with the utilitarian bias of a Victorian generation, nurtured on the slogans of Darwin, Du Bois Reymond, Spencer, and Virchow. It is, however, not altogether "Victorian." On the contrary, it seems to be as fresh and true as ever.

In 1898, Julius Pagel's *Introduction to Medical History in Twenty-five Academic Lectures* appeared. It was a landmark in medical historiography, both for what it was and for what it avoided to be. It avoided degenerating into one of those not all too accurate over illustrated compilations whose bulkiness and typographic finish stand in an inverse proportion to their scientific and didactic value. Nor was Pagel's work one of those popular best selling juxtapositions of excerpts from other books. The 1890ies had seen first Edward Theodore Withington's *Medical History from the Earliest Times* (1894). This was a masterpiece. It combined shortness, readability and the highest standard of historical criticism and original discovery. It has never been superseded. Then, four years later, Pagel's work appeared. It was bigger in compass and scope. Here again the reader found a vivid and original representa-

G. Rosen, *loc. cit.*, p. 597; P. Diepgen, *Med. Welt* 1931, V, No. 19. See also G. Urdang, History of Pharmacy as an Academic Discipline, *J. Hist. Med.* 1948, III, 5.

[8] Koch, *loc. cit.*, p. 11.

[9] This term is borrowed from the title of Temkin's paper, *loc. cit.*, 1946.

tion. Moreover, almost every page betrayed the original studies which the author had undertaken in preparing this book. Such studies of first hand sources had yielded unexpected results. For example, new parallels between Indian and Greek medicine were thus discovered and published:

Einführung

in die

Geschichte der Medicin.

Von

Dr. Julius Pagel

Privatdocent an der Universität Berlin.

Zwei Theile.

I. Einführung in die Geschichte der Medicin

II. Historisch-Medicinische Bibliographie für die Jahre 1875 1896

BERLIN 1898

VERLAG VON S. KARGER

KARLSTRASSE 15.

Fünfundzwanzig akademische Vorlesungen

von

Dr. Julius Pagel

Privatdocent an der Universität Berlin.

BERLIN 1899

VERLAG VON S. KARGER

KARLSTRASSE 15.

FIG. 1

Julius Pagel's History of Medicine of 1898 of which the introductory chapter is given in an adapted translation.

A passage in Hippocrates, On Wounds of the Head, contains the promise of a description of a new type of suture, a promise which the author fails to keep. The very same passage Pagel discovered in Susruta.[98] Another

[98] I quote the important passage from Pagel in full, as it was omitted in the later editions: Julius Pagel, *Einfuehrung in die Geschichte der Medicin*, Berlin, 1898, p. 33: "Haas ist es namentlich, der die Behauptung der Abstammung der indischen Medicin aus der griechischen vertritt. . . . Ich muss gestehen, dass auch mir der von Haas ausgesprochene Verdacht kam, als ich genoetigt war, zum Zwecke einer Arbeit ueber Wundbehandlung im Altertum und Mittelalter mich im Hessler genauer umzusehen. In

example is the first account of his discovery of the "Weigel manuscript," incorporating the only existing Greek Aetios text, in the Berlin Royal Library. He says:

> On June 13th 1896 I incidentally discovered here in the Royal Library Weigel's forgotten Aetius. . . . I have copied the XVIth book containing the gynaecology and other subjects. By comparison with the printed editions I have satisfied myself that we have here a verbatim copy from Soranus. I would therefore suggest that Aetius closely follows the wording of his sources also elsewhere, in those parts which he denotes as abstracts. This specially applies to the lost literary remains of a midwife Aspasia. Aetius can thus claim a particularly high literary value for us. . . .

Pagel intended to publish his transcription of the text, but—in spite of having made known his personal claim—was overtaken by somebody else.[9b] Finally I would refer to the original and now generally accepted representation of the development of Haller's work—culminating in the first full historical account of XIXth century medicine.

The whole of the first lecture was devoted to an exposition of the value of history for the practitioner, clinician, and research worker alike. Temkin has called it "one of the most comprehensive outlines of the pragmatic point of view."[10] In the subsequent editions of Pagel's book this chapter was omitted. Times had changed and there seemed to be no need for it. Medical history had become a subject in its own right ("Fach") with institutes and chairs. A new medical specialty had been created—comparable in academic dignity with, say, physiotherapy or forensic medicine. There was no room for the rhetorical appeal which Pagel meant to convey in his first lecture. Its omission was also in harmony with a change in the whole character of the book in subsequent editions. Much of its substance, notably its strongest part (the history

seiner beruehmten und unzweifelhaft echten Schrift ueber Kopfwunden spricht Hippokrates von einer besonderen Wundnaht, deren Beschreibung er spaeter folgen zu lassen verheisst, die aber tatsaechlich fehlt. Eine fast gleichlautende Angabe habe ich in Susruta's Ayur-Vedas gefunden. Ferner ist immerhin auffallend, dass auch in der indischen Medicin ulcus und vulnus promiscue gebraucht werden, genau wie bei Hippokrates. Aehnlichkeiten zwischen griechischer und indischer Medicin existieren auch bezueglich der Lehre von den vier Elementen. Der Eid, den die alten Brahmanen (nach einer Mitteilung von Roth) leisten mussten, stimmt fast woertlich mit dem des Hippokrates ueberein, wie auch die vielen bis ins Einzelne durchgefuehrten hodegetischen Vorschriften denjenigen der hippokratischen Schriftensammlung gleichen. . . ."

[9b] *Loc. cit.*, p. 143. See also P. Richter in his Pagel bibliography, *loc. cit.*, p. 79, and Sudhoff in the second edition of Pagel's book, Berlin, 1914, p. 586.

[10] *Loc. cit.*, p. 37.

of the XIXth century), remained.[11] The academic flourish of the lectures, however, their lively diction and, above all, the sense of proportion which they had maintained, were sacrificed in favour of bibliographical and historical minutiae.

Yet, medical historians are once again alive to the importance of medical history in practical medicine. We refer to the recent essays by Temkin,[12] Ackerknecht,[13] and Rosen.[14] In these we find many of Pagel's arguments repeated. It will be pertinent to mention these briefly and to contrast them with the more recent discussion of the matter.

(1) Medical history embraces the whole of modern medicine,[15] in the same way as embryology embraces the whole of human anatomy. There is no understanding of a structure without the knowledge of its development. The very same was expressed by Abraham Jacobi in 1905,[16] and Temkin said in 1946: ". . . if the historical aspect is neglected, present conditions will not be *understood* just as the structure of the adult body will not be *understood* without embryology, the history of its development." [17]

(2) Medical history reveals the deep cultural and social implications of medicine. It cannot fail to make the practitioner conscious of his position within the culture and society of his own age. This had been emphasised by Puschmann in 1879 and 1889.[18] Temkin says: ". . . the

[11] This even applies to the third edition by Sudhoff (1922) in which Pagel's name appears only in miniature print at the bottom of the title page. From the quotations which are bound to arise from this arrangement, I cite only two examples: K. G. Kuerz, *Die Freiburger medizinische Fakultaet und die Romantik*, Muenchen, 1929, writes on p. 101: "Sudhoff nennt ihn (sc. Bernhard Beck) 'den Begruender der neuen deutschen Kriegschirurgie'" etc. etc.—the whole passage is taken from Pagel's text, 1898, p. 161. E. Hintzsche, Ueber das anatomische Wissen Galen's und seiner Vorlaeufer, *Ciba Ztschr.* 1944, VIII, p. 3417, says: "Sudhoff hat das in seinem 'Kurzen Handbuch der Geschichte der Medizin' (1922, S. 116) anerkannt, denn er bezeichnet dort Galen's Neurologie als 'den Glanzpunkt seiner Anatomie'"—the passage comes from Pagel's text, p. 122 (1898). There are two ways to avoid this: (a) by quoting "Pagel-Sudhoff" (or "Sudhoff-Pagel"), a practice adopted for example by Temkin, or (b) by reverting to the first edition where the text was not altered in the later editions. This method was used by Rosen in his masterly account of the reception of Beaumont's discovery (G. Rosen, *The Reception of William Beaumont's Discovery in Europe*, New York, Schuman, 1942).

[12] *Loc. cit.*, 1946. [13] *Loc. cit.*, 1947. [14] *Loc. cit.*, 1948.

[15] See Daremberg, *Histoire des sciences médicales*, 1870, p. xiv and 7 ff.; Temkin, *loc. cit.*, p. 21; Rosen, *loc. cit.*, p. 599.

[16] Ackerknecht, *loc. cit.*, p. 138.

[17] *Loc. cit.*, p. 43.

[18] *Wien. med. Blätter*, 1879, p. 1070, and *Deutsche med. Wchnschr.* 1889, p. 818 (quoted by J. Pagel, *Geschichte der Medizin*, Berlin, 1898, p. 5).

history of medicine represents the humanities and social sciences in medicine and especially in medical education." [19] Ackerknecht has emphasised the post-war "necessity to humanise medicine through medical history." [20] It acquaints us with the "social science aspects of medicine." [21]

(3) Medical history retrieves and rehabilitates remedies and cures unjustifiably forgotten.

(4) Medical history enables the practitioner to make a stand against unsound claims and especially against quackery. As Temkin says: superstitious treatments are rooted in ignorance not only of medicine, but also of its history. This "adduces the instances in which experiments paved the way for progress." [22] It is history that protects the practitioner against "cynical nihilism" in the same way as it prevents the public from turning back to quacks of all sorts (Ackerknecht).[23]

(5) Truly great doctors have always been lovers and even accomplished writers of medical history. In this connection Ackerknecht enumerates some American examples [24] which can, of course, be supplemented by examples from all over the world and throughout the times.

(6) History teaches modesty. Ackerknecht refers to our ignorance of the actual nature of disease, the little progress that has been made in our knowledge of epilepsy, and the multitude of social-medical problems which emerge in a constantly changing world.

(7) It is only history which will enable the modern worker to assess his own time in its proper perspective and to understand its tendencies and position.[25]

(8) History should include an attempt to reexamine the methods and results—right or wrong—, used by the great historical figures, and thereby inspire us in our own medical work. It should prevent us from elementary mistakes, such as the confusion of "post" and "propter," the admission of statistically insignificant data, and pitfalls in diagnosis, prognosis, and treatment.[26]

[19] *Loc. cit.*, p. 34. [21] *Loc. cit.*, p. 143. [20] *Loc. cit.*, p. 139.
[23] *Loc. cit.*, p. 138. [22] *Loc. cit.*, p. 26. [24] *Loc. cit.*, p. 138.
[25] Temkin, *loc. cit.*, p. 46. Ackerknecht, *loc. cit.*, p. 140.
[26] The writer of a modern textbook of endocrinology aptly expressed this concept as follows: "A good deal can be learned from the manner in which endocrinologic discoveries were made in the past, since problems similar to those which have already been solved present themselves to us now and will probably arise again in the future. In choosing our problems and in preparing our plans for medical research, it is useful to profit by the experience of our predecessors. History can teach us to recognise promising and important subjects at an early date, by revealing the form under which such problems appeared much before their implications were fully understood and proven." H. Selye, *Textbook of Endocrinology*, Montreal, 1948, p. 37.

II.

One of Nietzsche's *Unzeitgemaesse Betrachtungen* was devoted to the "Service and Disservice rendered to Life by History." [27] Nietzsche emphasised that life and action are incompatible with a full preservation of the past; man should forget what is detrimental and remember what is useful for life and action. There are three ways, he says, in which history can be harnessed to the purpose of life.

(1) Those to whom life means struggle and battle will look out for great examples, for masters and heroes who will teach, comfort, and strengthen them. They will find these in history. It is history that provides the monuments of humanity, demonstrates its greatness and promises the gallant fighter a place of honour in its pantheon. In thus "monumentalising" the past, history makes its adept believe in the kinship and continuity of what is great through all periods. It embodies the protest against change and decay. Greatness that was possible in the past, should be possible again—that is the moral which history teaches and whereby it encourages the man of action, removes his doubts, and leads him to deeds of valour.

(2) A second pragmatic aspect of history is its appeal to piety. In the preserving and revering soul of the antiquarian the history of his home town becomes his own history; its walls, gates, festivals, institutions become as familiar to him as the leaves of a scrap-book. Here he finds himself, his activity, industry, his delight, judgment, folly, and manners.

(3) Thirdly, man is in need of history as a "critic." From time to time he must be able to break and dissolve the past.

These three aspects in which history appears as an instrument of life, embrace in a general form the points which demonstrate the usefulness of medical history for the present day physician.

At the same time there are limitations to the pragmatic view of general history. We shall see that similar restrictions hold good in the pragmatic treatment of medical history. The pragmatic view endangers the scientific treatment of history, i. e. its objectivity. Nietzsche says: "The past itself suffers as long as history serves life and is dominated by the urge of life." He dealt with these shortcomings of pragmatic history at length and finds them in all its three categories: the monumentalising,

[27] F. Nietzsche, Von Nutzen und Nachtheil der Historie für das Leben. Unzeitgemässe Betrachtungen. Zweites Stück (1873, 74), *Werke*, Leipzig, 1903, 1. Abtheilung, vol. 1, p. 279.

the antiquarian, and the critical type of history. The active worker who looks up to the great examples in history, the antiquarian who finds a historical object for his labour of love, the critic who judges history and condemns some traditions while he may deem others worthy of preservation—all these subject history to a process of selection. They do not accept the whole of historical truth in a scientific way, but extract from it what attracts their attention and promises reward in practical life.

"Monumentalising" history, gauging the present from the past, is bound to gloss over differences in detail—for no two deeds and facts are identical in detail; this type of history has no use for or patience with full and factual truth. By elaborating analogies in history it falsifies history. Antiquarian history is liable to degenerate as soon as it ceases to be inspired by life. "Then one may witness the nauseating performance of the collector's blind rage scraping together indiscriminately all that once existed." In any case the antiquarian cannot but look at history with a microscopic eye, his attention is fixed on detail, he lacks the sense of proportion—for there cannot be any difference in dignity between the objects of his study. "Antiquarian history can preserve life, but cannot beget it." It thus paralyses the man of action—for action of any kind is bound to trespass on the reservations dictated by piety, on time honoured customs, on the religious belief of forebears, on ancient privilege, etc. The historical critic finally is of necessity unjust—for his judgment on history is not intellectual, deriving from the pure source of knowledge, but from the "dark driving force of life which insatiably desires itself."

It is on these lines that Nietzsche sets out the shortcomings of pragmatic history as against the exigencies of scientific history. The latter aims at an objective examination of the whole truth, the former is intent on a selection directed by certain extra-historical purposes. A pragmatic history of medicine finds itself in exactly the same position. It establishes the present day standard of medicine as the gauge by which the past is measured. A stepladder of progress is constructed, and the landmarks and stepping stones which lead to the present day climax are mapped out. Prizes are distributed to those who seem to have paved the way to the present day climax. On the other hand historical figures are criticised for failing to have arrived at progressive results or views, or for the use of methods different from those regarded as legitimate or scientific to-day. Non-scientific methods might be condoned, however, where they led to a "correct" result and condemned where they did not. Harvey is praised for having logically deduced the probability of communications between

the arteries and veins, while Galen is blamed for his use of syllogisms and teleology side by side with his empirical research.[28] It is thus that the view of continuity is upheld in the history of science and medicine to-day. It is seldom realised, however, that this is achieved at the expense of historical truth. For only a process of extraction of discoveries and progressive ideas from their original setting and background will lead to the desired result.

Pertinent examples are afforded by the two outstanding exponents of scientific medicine in the XVIIth century: *Van Helmont* and *Harvey*. The former is indexed in the annals of chemistry as the initiator of modern chemistry and the predecessor of Boyle and even of Lavoisier—because he discovered " gas " and notably carbon-dioxide. Gas, however, in Van Helmont's sense is a wide cosmological notion conceived in order to solve the perennial problem of the relationship between things spiritual and corporeal. To Van Helmont, " gas " means the vector of specificity, a gift of the Creator whereby crude matter (water) is converted into organised objects.[29] This notion, no doubt, embraces the modern sense of gas, and Van Helmont fully recognised its import for chemistry. He distinguished it from air and water vapour—to him non-specific media common to all things. Moreover, he studied the properties of carbon-dioxide and other individual gases carefully and scientifically. But, where he is seen as a link in the development of modern chemistry, his original ideas are more or less disregarded or forgotten. The original notion of " gas " may be philosophical or metaphysical or else religious and mystical—at all events it is non-scientific, and therefore deemed worthy to be neglected by the historian of science.

What seems to matter in *Harvey's* work to-day is his discovery of blood circulation achieved by quantitative reasoning and experiment. But, Harvey saw " circles," i. e. cyclical processes reverting to the point of departure, everywhere in nature. Much speculation has been given to the reason why Harvey selected embryology as his second field of interest. There were probably many reasons—personal and age conditioned. The reason usually mentioned is his preoccupation with the movement and pathways of the blood in the embryo.[29a] What appears to be much more

[28] Temkin, *loc. cit.*, p. 26.

[29] The present writer in: *The Religious and Philosophical Aspects of Van Helmont's Science and Medicine*. Supplement to the Bull. Hist. Med., No. 2, Baltimore, 1944; and Van Helmont De Tempore and Biological Time, *Osiris* 1949, VIII, 346-417.

[29a] For example: E. Rádl, *Geschichte der biologischen Theorien*, 2nd ed., Leipzig, 1913, p. 135.

important, however, is the "circular" character of embryological processes, namely the reversion of the developed object to its original state. To Harvey and some of his contemporaries, generation is governed by the "mystery" of a "circular" process, for out of seed the plant develops in order to become seed again. In the embryo some homogeneous piece of albumen becomes organised, it develops blood, then a pulsating vesicle and the whole organism which eventually—after the death of the individual—will become homogeneous albumen again. The principle in the egg, the seat of the first action of the formative principle, the so called "spot" or "cicatricula" expands in concentric circles in the centre of which the punctum saliens will be discovered. Already in *De motu cordis* Harvey had given expression to this philosophy of circles: "Nature in death," he says, "retracing her steps reverts to whence she had set out, returns at the end of her course to the goal whence she had started; and as animal generation proceeds from that which is not animal, entity from non entity, so, by a retrograde course, entity, by corruption, is resolved into non entity, whence that in animals which was last created, fails first; and that which was first, fails last." Harvey's problem was the *purpose* of "circulation" at large. He concluded that it serves *regeneration* and thereby *stability*. Blood must circulate in order to retrieve its vital power in the heart, the "focus" of life, and generation is regeneration and preservation of the species.[30]

It is easy to see that this circular philosophy is the outcome of Harvey's Aristotelian bias. There is hardly a page in Harvey's book on generation in which Aristotle is not mentioned, or the author fails to define his own views with respect to those of the philosopher. The first short abstract of Harvey's discovery appeared in Beverovicius' small book, in the same Aristotelian setting, in which it had been given by Harvey himself in a book of equally small size.[31] The mystic physician and Rosicrucian, Fludd,

[30] For references see the present author in: A Background Study to Harvey, *Med. Bookman and Historian* 1948, II, 407, and William Harvey and the Purpose of Circulation, *Isis* 1951 (in press). The above refers to the observation that the right auricle, the first to be differentiated in the embryo, is the last organ to die in the adult individual.

[31] Joh. Beverovicius, *De calculo renum et vesicae liber singularis*, Lugd. Batav., Elzevir, 1638, p. 20-24. As late as 1692, Stephan Chauvin concluded in his *Lexicon rationale sive thesaurus philosophicus*, Roterodami, 1692, the article "circulatio" with the macro-microcosmic analogy. He starts with the quantitative consideration of the blood volume which would be excessive, if there were no circulation. He then gives the experimental proofs derived from the behaviour of arteries and veins, under pressure or after ligature. He then winds up: "As there is in the greater world a perpetual back-flow of water from the sea through subterranean channels, and to the sea through the river basins, so there is in the smaller world, i. e. man, a perpetual circuit through arteries and veins."

the first to approve of Harvey's discovery at a time when the latter was disbelieved and ridiculed, emphasised its importance as the demonstration of an impression of the planetary system and the zodiac retained by the "spirit of life."[32] To praise Harvey as the man of progress, and the liberator of science from the shackles of "static" views as cherished by the ancients and the Renaissance is, therefore, a lopsided representation. Harvey no doubt introduced "dynamic" perspectives, and certainly achieved the discovery on which modern physiology is based, but all this emerged from the framework of a strict Aristotelian cosmology in which the supremacy of the astral world and of the heart as the "centre of the microcosm" were notions of fundamental importance.

To-day the scientist may be religious or adhere to a certain brand of metaphysics. His scientific work may even have directed him to this general mental attitude. But the converse is not normally true—whereas it is in the case of many a seventeenth century scientist. The latter was often directed to his research by his general cosmological, metaphysical, and religious ideas. To appreciate him as an historical phenomenon and to understand his work in its entirety will require a careful study of these ideas. They must be taken seriously and not dismissed as figures of speech, or poetical stuffing, or else as a cloak in which to hide knowledge unpalatable to contemporary society or the church. In other words, it must be shown that these general ideas are not merely aphorisms, but form a consistent philosophical or cosmological or religious system and a fitting basis for the scientific observation and reasoning peculiar to the savant under consideration. The modern scientist or physician who is taking charge of the history of his subject will find this task of resetting scientific discoveries of the past into their proper religious or philosophical background uncongenial. He will naturally prefer to extract them from their original setting. In this way he may ably introduce the student to a scientific subject, but he will not become, or he will cease to be, an historian. For: "L'Historien doit se faire contemporain des savants dont il parle."[33]

But, will such an attitude not sacrifice *the idea of continuity* in the history of science and medicine? Will it not endanger the line of continuous progress which seems to lead from Van Helmont to Boyle and from Boyle to Black and Lavoisier, or from Harvey to Lower and Malpighi, from these to Haller and so on to modern cardiologists such

[32] The present writer in: Religious Motives in the Medical Biology of the XVIIth Century, *Bull. Inst. Hist. Med.* 1935, III, 97-312 (p. 277 in particular).

[33] H. Metzger, *Archeion* 1933, vol. XV, 34.

as Sir Thomas Lewis? Indeed it will. "Continuity in history" will disappear or at best remain a cliché, if early scientists are seen as undivided wholes and not dissected in order to save what is "useful" and to discard what is not. The savant will then appear as a unified and thus unique historical phenomenon from which no bridges lead forward or backward. Certain facets of the historical figure may lend themselves to the construction of progress and continuity, but a full historical appraisal will support the view of *discontinuity* rather than that of continuity in the history of science and medicine.

This is "history in its own right" as opposed to history as a discipline useful to the modern student of science and medicine. To emphasise its existence cannot mean a denial of the raison d'être of pragmatic history. The latter is still of the utmost importance, as we have seen before.

If this is so, the history of medicine cannot attain its full significance short of a synthesis of the "historical" and "pragmatic" points of view. Pagel himself has seen and expressed this in the preface to his editio princeps of the "Concordanciae" of John of St. Amand, in 1894. Here he says:[34]

> The mere cultivation of chronology and veneration of the achievements of our predecessors do not make history. He who merely studies the history of the literary sources, is no historian. Nor does the writer of a textbook of medical history for didactic purposes qualify for this title; nor finally does the brilliant speculator who tries to construct continuity where it does not exist, or denies it where it can be demonstrated. . . . The true historian must be more than a collector of material—for what is the use of the most beautiful stones and panels where there is no ability to put them together? The true historian will be the critic who introduces order into apparently chaotic material, finds the right thread of continuity and *makes himself a contemporary of the past.*[35] He will see the past in the light of even the smallest features of his own time and culture. To him the behaviour and motives of the great figures of history will lie open. He will be at home in their literary remains and, however conscious of their achievement, not hesitate to review it critically. Last, but not least, his representation should be interesting and of high literary quality in order to give inspiration and to discourage petty and malicious treatment of the subject. The great Historian—in a general sense—must combine the imagination of a poet with the enthusiasm of an orator, the detailed knowledge of a specialist with the vision of a statesman, philological technique with the shrewdness of a lawyer, the practical commonsense of a man with the ethical maxims of a philosopher and the insight of a psychologist with the intuition of a prophet.

[34] Pp. xiii-xiv.
[35] The italics are those of the present writer.

III.[36]

The First Lecture.

Introduction.

Nature, value, object, sources and classification of medical history.

Whoever wishes to embark on a study of medical history should first define two points. These were formulated about a century ago by our poet and erstwhile colleague Frederic Schiller when he called his inaugural lecture: "What are the nature and use of universal history?" Thus we, teacher and pupil alike, are to ask: What are the nature and use of medical history? In other words we envisage the essence of medical history and particularly (though without pandering to modern utilitarianism) its *purpose* and *usefulness*.

The scientific structure called "Medicine," which forms the basis of the rational art of healing, is not an ancient and stable product—for there is nothing stable in the universe. On the contrary it is a thing constantly changing, and therefore alive; something that follows Heraclitus' slogan "panta rhei." Nor is it the fruit of very recent work—for it results from the tireless activity of thousands of years and men.

How, in this artful yet changeable and imperfect structure, stone was fitted to stone; what masterbuilders took part in erecting it; how the façade was subjected to frequent change, the walls and interior to destruction and rebuilding while the foundations remained; how knowledge and insight grew in the course of and through this work—all this is taught by history. Medicine probably remained in the very ancient state of brutal empiricism much longer than its scientific age has lasted. Medical history demonstrates how much labour and struggle was involved in the development of individual theories to their present admirable standard of perfection. It reveals the crass changes and self-contradictions of theories, dogmas, and opinions. What had been regarded as an unshakable buttress of knowledge, for a long time, suddenly or gradually emerged as fallacy and was rejected and forgotten. It is from history that we learn how facts and laws were discovered, less often by a stroke of genius than by long sustained research in the quiet study of the scholar or in the workshop of Nature. Truth had to be established in long documentary campaigns against tenacious prejudice and traditions deeply rooted in the

[36] The following is an adapted translation of the introductory chapter of Julius Pagel's *Einführung in die Geschichte der Medizin*, Berlin, 1898, pp. 1-9.

"vulgus medicorum." We witness how the fortunate discoverer was denied due recognition and how progress suffered from jealousy, ambition, fanaticism, narrow-mindedness, inefficiency, forgery, and immaturity.

Those lessons which we owe to medical history alone indicate its value. Can there be a better instructor for the physician than the history of his art? For it is the knowledge of history that integrates, increases, and confirms practical knowledge. Medical history embraces the whole of our present day medicine, in that it analyses and sums up the stages of its development. History thus helps us not only to understand the factual knowledge of the past but also to discover new facts—in the same way as the embryological method has opened up many obscure fields. Aristotle aptly regarded the knowledge of origins and beginnings as essential for the understanding of any subject. The medical man is improved by the study of medical history—not only in professional knowledge of his specialty, but also in the standard of his general human education. The position of medicine in the orbit of human knowledge at large is comparable with the relationship between our planetary microcosm and the whole solar macrocosm. Just as the earth, spinning on its own axis, revolves about the sun, so medicine follows its own ways, but has perceptibly reflected on the other branches of culture. In its turn medicine has been influenced to a high degree by philosophy, science, and all the arts and humanities, notably by religion, political and social conditions, in short, general culture.

Medicine embodies in itself a considerable proportion of general culture. The standards of the former ever closely parallel those of the latter. Ancient medicine cannot be understood without conjuring up a canvas of all the activities of ancient man and nations, such as eating, drinking, housing, commerce, arts, crafts, recreations, scientific ideas, politics. This task is facilitated by a historical understanding of the present. Take the life of the university, in which certain traditions, notable in many formalities, remain alive. There we have the middle ages, roughly the period between the XIth and the XIIIth centuries, not in their full but in a kind of reflected glory. There one hears on ceremonial occasions the language of the Roman Church, one sees the academic teacher don the gown of the monk—(admittedly not much of a change for the Professor of Theology, but a kind of subjugation, however much desired, for the modern Professor of Medicine). Looking at these harmless, though hardly beautiful relics of the medieval schoolmen one gains a picture of the times in which our universities were founded, of their source, their nature,

their physiognomy. It is one feature which will reveal the character of the time—just as the tooth of an antediluvian animal reveals to the palaeontologist the anatomy and function of the whole organism.

But, can I derive immediate benefit for my practice and art from the study of medical history? The answer to this question is given by the motto which the great Viennese Anatomist Joseph Hyrtl (1811-94) once found at Paris inscribed on the gates of the dissecting room: "Hic locus est ubi mors gaudet succurrere vitae." ("This is the place where death gladly comes to the aid of life.") There is no better motto for the gate leading into medical history. Most of the savants whom we study are dead, many of their doctrines have been superseded; we have no excuse for them and their errors. The study of history is like a pilgrimage over a monumental cemetery and the historian like a sexton. It seems a hard task for a modern medical man who faces new and changing discoveries almost daily, to delve into what appears to be a dead and motionless past. Yet the practitioner will soon learn that nothing is less justified than the Cinderella treatment of medical history.

We cannot fail to instil spirit and life into our time-honoured literary remains and documents, and to derive life for life's sake from them. First of all we shall hit on many remedies that have been unjustifiably forgotten and relegated to the therapeutical lumber room, often in favour of bad and quack innovations. These remedies, now forgotten, served innumerable generations of doctors in their combat against disease and death, they are promising today and deserve rehabilitation. There are not a few ingenious discoveries and inventions of the past which we see emerging from oblivion and being confirmed by the results of modern research. Moreover, astounding analogies between old and new doctrines come to the surface.

Omnis cellula a cellula. Life begets life. You will not discover new paths, unless you study the old ones. The stupendous struggle and striving of our predecessors must be our ideal and we must master those methods which the past has shown to lead to an end. However, medical history speaks not only with the voice of the teacher, but also with that of the preacher. It enlivens the pulpit with an eloquence second to none in resonance and fire for those who want to listen, though for so many it will remain the voice crying in the wilderness. As Theodor Puschmann emphasied in 1889 in his oration on the "Significance of History for Medicine and Science" (addressed to the Naturforscherversammlung at Heidelberg), there is no better education for the doctor in professional

ethics than the knowledge of the history of his art. This applies negatively to what he should avoid as well as—positively—to the duties demanded by piety. The critical education afforded by the study of medical history should enable the physician to make a stand against the rash and boisterous desire for novelty which has been the result of modern therapeutical industrialism. History enjoins caution and warns us against the uncritical adoption of new methods. It reaches this goal by unmasking the power of suggestion exerted upon generations of doctors by, as we now know, unsound systems and theories.

Knowledge of history is the best protection against quackery. It supports truth against insincerity and falsehood, and damps down the blind enthusiasm that is actuated by false motives. It spells victory to inspired conviction and faithful honesty over mercenariness and ostentation. In short, history is to the doctor the embodiment of medical ethics. It almost amounts to a religious cult in that it deepens the spiritual and emotional life, imparts fairness, modesty, and piety and removes complacency. Just as religion is a private affair of the individual, the lover of history shuns the din of publicity. He who is ignorant of history will have little regard for it. He who is acquainted with it, however, will be conscious of its value, enjoy the recreation that it affords, and feel the support which it lends in adversity.

There is a further point, even more important and comprehensible to the practitioner. In a medical man, reliance on experience and observation in itself bespeaks a sense of history and vice versa. For medical history is but a concentrated representation of the sum total of all experiences and observations, ever made in medicine. It is the elucidation of medical knowledge, i. e. the product of reason and experiment as employed by doctors at all times and among all nations. In a doctor, ignorance of, or hostility to, history spells lack of inclination to scientific research or any kind of work. This was already emphasised by Galen (born about 130 A. D.) when he said that we epigones are standing like dwarfs on the shoulders of gigantic predecessors; and only fifty years ago Rudolf Virchow (born 1821) wrote: in medicine also, scientific work cannot but be historically minded; at least it must start from an examination and perusal of the literature.

Admittedly, medical historians have but rarely distinguished themselves as experimenters and pathfinders. We know, however, that all representative and important medical men commanded some considerable historical knowledge. This not only concerned detail, but also the necessary survey of the whole, effecting a live spiritual contact with the past.

The study of history will inspire new ways of thought and the discovery of many a germ of advanced research. This cannot mean pirating the ancients, but penetration into the ways and methods employed by our great predecessors, by Hippocrates, Galen, Vesalius, Paracelsus, Harvey, Haller, Bichat, Laennec, Skoda, Virchow, Helmholtz.

With them we should work through their results again, probe their equipment and methods, and amplify, complete, and correct them where necessary. The old truth will then emerge again that scores of small men find work where a king erects his palace—as shown in our own days by the literary work in the wake of the fundamental creations of Darwin, Pasteur, Lister, Koch, and others.

Last but not least, there is a further advantage connected with the knowledge of history. As you know, publicity is everything nowadays. It is the able debater who will gain public approval for his ideas. There is lively opposition to scientific and professional medicine ("Schulmedizin")—owing to a number of deplorable social and cultural factors which we shall not discuss. When enlightenment and liberty have reached a certain high standard, a recrudescence of immature embryonic stages, long superseded, but perhaps the germs of further progress, is bound to occur. At present, homeopathy, a typical form of quackery, now a century old, has been followed by the so-called "natural cure" of disease. To combat it—and you are called upon to do so in the front-line—requires sure historical knowledge. To separate error from truth and to do so convincingly in the eyes of the public means to demonstrate how what is new in these ideas is untrue and what is true is not new, but taken over from scientific medicine and fraudulently clad in a new garb.

Finally, so-called people's medicine cannot be understood but in the light of medical history. It is history that teaches us tolerance towards traditional and vulgar remedies and the peculiar ideas that we meet with at the bedside—for example, arnica-cataplasms in wounds, the application of bean-flower in erysipelas, of honey in tonsillitis, hair pulling for when the uvula has "fallen," i. e. in pharyngitis, or the idea of "haemorrhoids in the chest," etc. All these have been taught and recommended by scientific doctors at various times, and were then adopted by the people and tenaciously retained in certain districts to the present day.

So much—by way of introduction—for the nature and usefulness of medical history. I have enlarged upon it because of the deplorable lack of encouragement which there is, both for the teacher and for the student. There is no examination in the subject—and there cannot and should

not be. Hence ignorance and neglect of medical history are natural enough, considering the inclinations of the average present-day medical student. Those few rare birds however, who do wish to attend lectures on history, should realise its usefulness in its full splendour and the reward which it promises. One witnesses changes and repetitions in one's own life as well as in history. As children you enjoyed your home. Later on you will in turn enjoy your own family life and recall the happy hours of your childhood. You will experience the same in history. Recapitulating the work of our forbears you will acquire through an understanding of the past a clear perspective of the present and future, in which I hope many of you will make history yourselves. Knowledge of history is the best link between past and future. Learn history in order to learn from history.

THE HISTORY OF FIBROADENOSIS OF THE BREAST

ARCHIBALD L. GOODALL

It might have been expected that the clear syndrome of pain in the breasts associated with a definite period of the menstrual cycle would not have escaped recognition by medical men throughout the ages. Yet it is difficult to find a description which corresponds even vaguely to the disease which we now know as fibroadenosis until the nineteenth century. The tracing of this disease is bedevilled by a confused nomenclature and by the lack of histological observations by the early writers.

The early Greek physicians, in spite of their keen observation of clinical symptoms, left no record of the condition. The Hippocratic writings (c. 400 B. C.) confined the discussion on diseases of the breast to general considerations of abscess and carcinoma. Some claims were made to cure of scirrhus and it is probable that many of these were fibroadenosis.

Celsus (c. 30 A. D.), in his discussion of the effects of weather and climate on disease, noted that the north wind caused pain in the breasts and suggested that hard breasts in pregnancy indicated a strong foetus.

Galen (131-201), in his usual dogmatic manner, stated that scirrhus of the breast occurred only after the menopause and that women with regular menses were immune to this tumour. He, like the Greeks, also claimed cures of scirrhus but one feels that his follow-up system must have been imperfect.

Soranus (c. 1st. century A. D.) described a hardness of the whole breast contrasted with the localised hardness of scirrhus. This might have been fibroadenosis but seems more likely to be a description of carcinome en cuirasse, for he deprecated operation in advanced cases. However, he suggested that, if the condition were confined to less than half the breast, operation with the cautery might be curative.

Nonnus, Oribasius (325-403), Paul of Aegina (625-690), Rhazes (860-932), Haly Abbas (d. 994), Avicenna (980-1037), and Scribonius (c. 1600) gave varied descriptions of abscess of the breast and distinguished between apostume with and without suppuration. None of these writers noted a relationship to menstruation.

Aetius (6th century) mentioned a condition of hardness of the breast and prescribed an emplastrum. This description is the only one of the

ancient writings which suggests closely that the condition was the disease now known as fibroadenosis. He gave it the name "chondriasis" and referred to the works of Aristotle for the original description.

The mediaeval surgeons Guy de Chauliac (1300-1368), Low (?1550-1610), and Fabricius (1537-1619) did not distinguish clearly between carcinoma and abscess. Vesalius (1514-1564) gave a clear anatomical description of the breast but failed to describe fibroadenosis.

Ambroise Paré (1510-1590) divided scirrhus into four types:

1) True or legitimate scirrhus which caused slight plain and tenderness.
2) Illegitimate scirrhus which was not painful.
3) Cancrous scirrhus.
4) Phlegmonous scirrhus which was characterised by oedema.

He noted that illegitimate and cancrous scirrhus were incurable corresponding to carcinoma with and without ulceration. It is possible that legitimate scirrhus was fibroadenosis and that phlegmonous scirrhus was acute mammary abscess.

Richard Wiseman (1622-1676) made a similar distinction calling his types:

1) Exquisite or true scirrhus, a condition which was painless and incurable.
2) Imperfect or bastard scirrhus which was painful and might be cured. It seems likely that imperfect scirrhus represents fibroadenosis.

Marcus Aurelius Severinus (1580-1656), usually known as Severino, gave the first clear description of the differences between simple and malignant tumours of the breast. He did not, however, enlarge on the clinical characters of these diseases and it is impossible to judge from his works whether he recognised the lesion of fibroadenosis. He appears to have realised that the first stage of carcinoma might be cystic hyperplasia.

John Hunter (1728-1793) recorded a case which seems to have been a giant fibroadenoma of the breast and made some shrewd observations on carcinoma, but he did not write on any lesion which resembled our conception of fibroadenosis. Cheselden (1688-1752), Pott (1714-1788), Baillie (1761-1823), and Bell (1774-1842) are silent on a disease of this type.

John Abernethy (1764-1831), a pupil of Hunter, described a tumour of the breast which, from its appearance, he called pancreatic sarcoma.

His classification is rather bizarre as all the tumours were named after the organ which they most closely resembled on macroscopic section. It is possible that the "pancreatic sarcoma" may have been a diffuse fibroadenosis.

Abraham Colles (1773-1843) wrote in his *Treatise on Surgical Anatomy* in 1811:

> Although the diagnosis between scirrhus and other diseases of the breast be not founded on the anatomical structure of this part, and consequently does not come within the scope of this work, yet I cannot refrain from stating the symptoms of another species of tumour, which is occasionally met with in the breast, as it is not described by any author I have hitherto seen.
>
> This is a distinct tumor or hardness in the breast, generally seated deep in the substance of this gland, and towards the axilla. This is usually traced by the patient to some slight hurt. In size, it scarcely ever exceeds a walnut. Its surface seems rough; but this is caused by its being felt through the gland. It is occasionally attended with some slight pains; these are induced by any distress of mind—by wearing the clothes tight across the breast—and by a costive state of the bowels. On the approach of the menstrual period, these pains increase, and cease on this evacuation being completed. A temporary enlargement of the tumor attends these attacks of pain, and retires on their cessation.
>
> The subjects of this complaint are young women, generally under thirty years of age. In one instance, the patient was nearly forty years old, and unmarried; in another, the lady was married, but had not any children, and was irregular in menstruation. These tumors disappeared in such of these patients as became nurses, and in the others have remained stationary for many years. The only treatment I conceive they require, is such as tends to restore the general health. A lotion of aqua ammoniae acetata; or camphorated spirit of wine applied with a feather, and allowed to evaporate, are the topical applications which I have employed with most relief to the patient.
>
> I have introduced the mention of this disease not for the purpose of laying down a plan of treatment, but of preventing this kind of tumor from being mistaken for a true scirrhus.

This admirable description sums up most of the points of fibroadenosis as we know it today. Written in Colles' usual succinct style, it wastes no words but precedes and outshines many of the writers whose names have been associated with the disease.

William Cumin (1827), a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow and later Professor of Midwifery in the University of Glasgow, wrote "A General View of the Diseases of the Mamma."

This excellent little article was the first to describe the condition of cystosarcoma phyllodes later named after Johannes Müller. He refers

to mastodynia and to serous cysts of the breast in a way which suggests that he had considerable experience of fibroadenosis.

Sir Astley Paston Cooper (1768-1841), in his classical work on *Diseases of the Breast* published in 1829, divided lesions of the organ into

1) Common Inflammation—acute and chronic.
2) Complaints arising from familiar or specific action.
3) Malignant diseases.

He placed under the second heading cysts and noted that there is a concomitant fibrosis. In Chapter IX, he wrote of the "irritable tumour of the breast." This occurred between the ages of sixteen and thirty and pain occurred in the premenstrual period. It might be lobular and unilateral or bilateral. It was often associated with menstrual disorders or vaginal discharge. Plate VIII shows clearly the condition of fibroadenosis.

Cooper wrote again in 1835 deprecating mastectomy as the only treatment for diseases of the breast. He set out to distinguish between benign and malignant lesions and wrote of the benign thus: "A change in the nature of the swelling occurs as it enlarges. At first, it is uniformly solid, but afterwards distinctly divided into a solid and a fluid part. . . . If this part be punctured, a liquid having the character of serum is discharged, but the swelling soon becomes distended again. . . . It is a complaint that I have seen at all ages over twenty, but more frequently in advanced age than in youth." He described the blue appearance over the cysts.

In *The Anatomy of the Breast*, Cooper noted that fibrosis is characteristic of simple breast diseases or of the normal breast. Even in single women, the breasts, toward the cessation of sexual secretion, become often exceedingly lobulated. Menstruation makes a great difference in the feel of the breasts as they become full, tense, and painful, and an ecchymosis sometimes appears. It would appear, therefore, that Astley Cooper recognised the condition and had some idea of its pathology.

James Syme (1799-1870), in his *Principles of Surgery* (1831), discussed, on p. 271, the diseases of the mamma. He noted firstly diseases with derangement of "intuitive or sensitive action" which he divided into those occurring at puberty and in early pregnancy, those in middle-aged women, and "the irritable breast." He referred to the white appearance of the latter condition and its association with cysts. He made the observation that mastectomy was not of much avail because pain recurred in the scar but he did not relate the pain to menstruation. Later he de-

scribed "cystic sarcoma," a benign condition, and noted the blue colour of the unopened cysts.

Bérard (1842) gave a good description of fibroadenosis and noted the relief of pain which occurs with pregnancy. He recorded the tendency to spontaneous cure but believed that the cause was chronic inflammation. In discussing cysts, he followed Nélaton in an elaborate system. He wrote of tumours of the breast associated with neuralgia, the tumours being about the size of a pea and very tender on palpation. They were liable to spontaneous remission and occurred in the age group 16 to 40. He cited Dupuytren who recorded similar tumours: "D'une espèce particulière de tumeurs fibro-celluleuses enkystées connues sous le nom de ganglions ou tubercles nerveux."

Velpeau (1795-1867) published, in 1854, his *Treatise on the Diseases of the Breast and Mammary Region* in which he described induration of the breasts occurring at puberty, before the menstrual period and at the menopause. He went on to describe "chronic induration" occurring between the ages of twenty-five and forty, associated with celibacy and disorders of menstruation. This condition might spontaneously resolve and had no clear connection with malignancy. Discussing "neuromatous tumours and nodosities," he described several cases which would fit the diagnosis of fibroadenosis. In these cases "neuralgic pains" were augmented by the menstrual period and there was a large psychological element present. He advised treatment with a firm brassière.

Sir Benjamin Collins Brodie (1783-1862), in his *Lectures on Surgery and Pathology*, No. VII (1846) wrote:

> The disease of which I propose to treat on the present occasion is an affection of the female breast. It is one of general interest in various ways, and among others in this, that, in its advanced stages, it is liable to be confused with carcinoma, although it is not really of a malignant nature. . . . Yet I have not met with any description of it in the text books corresponding to what I have observed of its actual progress.

He went on to describe single and multiple cysts, unilateral or bilateral, usually with one large cyst of which the patient complained, but always found associated with multiple smaller cysts when the opportunity for dissection presented itself. He gave the age incidence as puberty to middle age and thought it was commoner in the unmarried. Pain was not a feature. He suggested the name "sero-cystic tumour of the breast." The treatment recommended was puncture of the cysts (always followed by recurrence), the application of embrocations, or excision. He believed that the cysts were due to dilatation of the lactiferous tubules.

Tuson (1846) classified diseases of the breast into:

1) Functional and painful affections.
2) Organic lesions of the mamma, independent of inflammation.
3) Organic lesions.

Under the second group, he included congestion of the breasts at menstruation and considered that it was due to obstruction of menstrual flow and its diversion to the breasts. He included in painful tumours a lesion called "irritable tumour." This was related to the menstrual cycle and had an age incidence of sixteen to thirty. Treatment was advised with plasters and ointments. Neuralgic conditions of the breast were divided into "neuralgical" and "hysterical," both probably being types of mastodynia.

Sir James Paget, in his *Lectures on Surgical Pathology* (1853), referred to cysts of the breast and thought that, while some were due to dilated ducts, others were due to the same lesion as "renal cysts." He noted the concomitant fibrosis and remarked that coincidence with carcinoma was not rare. Writing in 1878, he again stressed that chronic induration of the breast may become cancerous but some cases cleared up with the exhibition of potassium and iodides.

Gross, in his *Tumours of the Mammary Gland* (1880), classified cysts of the breast as:

1) Retention cysts
A) Simple cysts i Involution cysts
ii Evolution cysts
B) Lacteal cysts
2) Hydatid cysts.

It seems likely that his "involution cysts" were fibroadenosis.

Joseph Lister, in 1881, contributed to the *British Medical Journal* notes of several breast cases treated by the antiseptic method. Two of these were cysts treated by tapping and injection of zinc chloride.

Réclus (1847-1914) called the condition "cystic disease of the breast." In his contribution, "La maladie kystique des mammelles," he noted that there were many cysts occupying most of the gland and that the lesion was bilateral.

Elle présente deux caractères bien nets: D'abord les kystes, en nombre souvent considérable, occupent la glande toute entière. Or d'habitude il n'en est pas ainsi, et les cavités se développent au milieu d'une tumeur sarcome, épithéliome, carcinome, qui, quel que soit son volume, n'atteint guère qu'une partie de la mammelle,

saine en ses autres points. Ici, la glande est partout envahie, et, de la périphérie au centre on trouve des kystes épars dans tous les lobes.

Le second caractère n'est pas moins singulier: dans cette affection particulière, les kystes sont bilatéraux.

Réclus proceeded to describe the history of the lesion. Firstly, there was a fibrosis in the region of the nipple. Around this was a region which resembled adenoma. Then there appeared an adenoma-like region containing small cysts and, at the periphery, a region containing large cysts. He noted the occurrence of epithelial proliferation and advised the total amputation of the affected breast or breasts. He considered that the aetiology of the cysts was a dilatation of the acini and milk ducts in all the lobes and lobules. Clinically, the disease was characterised in many cases only by irregularity on palpation but there might be a little pain and tenderness.

Schimmelbusch (1892) used the term "cyst adenoma mammae (maladie kystique)." He described it thus:

It is a disease which is not uncommon in middle-aged women. It occurs with equal frequency in those who have and have not borne children. Numerous cysts the size of a pea or bean, rarely larger, develop. These are filled with greenish brown, somewhat sticky, fluid, and are found especially in the posterior part of the gland. The diseased breast is not adherent to the neighbouring structures. The disease affects almost without exception both breasts at the same time, or one shortly after the other. Microscopically there is found a marked increase in the number of acini. The epithelium may undergo slight hyperplasia or form a cast of the alveolus. Two or more acini may fuse, and as a result of the poor nourishment of the epithelium, cysts may form, the contents of which are a combination of secretion and degeneration. The connective tissue shows no evidence of inflammatory or proliferative changes. It is known, however, that a carcinoma may develop on this disease, for among 43 cases, a carcinoma of the breast was found three times.

W. R. Williams, in his *Diseases of the Breast* (1894), considered that the cysts were developed from the ducts and not from the acini. He thought that they were due to irritation of the duct, probably microbic. In a consideration of a condition which he named "general cystic disease," he referred to Brodie's description that "it is never known to occur before puberty: rarely after the middle period of life and more commonly in single than in married women" and suggested that this disease was related to involution and not to inflammation. This contradicted the theory of Delbet who thought that the aetiology was infection (1893).

Marmaduke Sheild, in his *Clinical Treatise on Diseases of the Breast*

(1893), noted clearly the relationship to the menstrual cycle but did not deny the possibility of infection.

Creighton (1902) agreed with Birkett (1850) who considered that cysts were derived either from the ducts or the parenchyma. He then made the revolutionary suggestion that they are derived from the sweat glands. He had already published, in 1878, a rather fanciful account of the physiology and pathology of the breast in which he noted the hypertrophy-involution cycle through which the functioning breast must pass.

König (1893) introduced the term "chronic cystic mastitis" and the conception that the disease was solely due to infection. His main contribution was to point out the numerous differences between fibroadenosis and neoplasm but his mistaken nomenclature has been very difficult to eradicate.

There is a very interesting group of theses relating to the breast submitted to the University of Paris for the degree of M. D. These are bound together in the Library of the Royal Faculty of Physicians and Surgeons of Glasgow and sum up the French attitude in the nineteenth century.

The first is by Nélaton in 1839 and covers the subject of cysts of the breast fully. He gave a complicated classification but noted the good effect of pregnancy. The second, by Cadiat, portrays in drawings the pathological picture with remarkable accuracy for its date, 1875. Another, by Hubert, in the same year, noted the association with sterility and an increase in incidence at the menopause; it is possible that there was some confusion with carcinoma. Rogeau (1874) suggested in his thesis that epithelial and secretory activity were started by various traumata and paid particular attention to non-puerperal secretion.

These numerous contributions of the nineteenth century inevitably lead to confusion. One doubts whether they all refer to the same disease. Perhaps Ewing (1940) helps to elucidate the matter by his division of "chronic productive mastitis" into three types.

The first he identified with the descriptions of Astley Cooper, Brodie and Réclus. Brissaud and Schimmelbusch noted that epithelial proliferation preceded cyst formation and the former used the name "épithéliome kystique intra-acineux." Phocas (1886) stressed the shotty feel calling the lesion "maladie noueuse." The neoplastic school was upheld by Cornil and by Lecène and Lenormant. The infective school was led by Delbet and Köning. La Roy stood between these two ideas considering the process a pathological proliferation between inflammation and neo-

plasm. Ewing pointed out that these writers all refer to a glandular type of disease.

Ewing's second type, which he ascribed to interstitial changes, he identified with Werhner's "cirrhosis mammae," Velpeau's "induration chronique en masse," and Virchow's "elephantiasis dura."

Ewing's third type was a senile atrophy often accompanied by irregular overgrowth of stroma and glands, and associated with cysts. This corresponds with Bryant's description in 1900.

This survey of the literature dealing with fibroadenosis of the breast may be of value in clarifying the lesions described under so many different names by different authors. It may also be a basis for the suggestion that we should now clearly define what we mean by "chronic mastitis" and use a term which does not suggest any unproved aetiological or pathological factor. The danger of the term "chronic mastitis" was pointed out by Cheatle in 1925 and recently by Atkins (1947); nevertheless, it is still used and some of the modern terms are of no greater value. The name used throughout this article is supported by Atkins and, in our present state of knowledge, seems to fulfil the criteria that it does not convey any preconceived notions on aetiology or pathology and that it is applicable to all types of the disease so far described.

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SIR THOMAS BROWNE, M. D., WILLIAM HARVEY, AND THE METAPHOR OF THE CIRCLE

FRANK LIVINGSTONE HUNTLEY *

This paper explores the possibilities of Thomas Browne's accepting the Harveian theory of the circulation of the blood on the grounds that it appealed to his poetic imagination as well as to his scientific reasoning. As a devout enquirer into the mysteries of the universe Browne often used metaphors that have not only a literary purpose but a philosophical one as well. Such a metaphor, raised to a symbol, is the circle as it expresses the perfectability of God the Creator.[1] Could it be that Thomas Browne was so fond of this hieroglyph that it was easier for him to accept the new thesis of a circulating blood-stream than it was for other anatomists whose minds had not been enlarged by the poetic method of perceiving truth, i. e. by similitudes, analogies, figures of speech? [2]

Through the metaphor of the circle Browne connects his two favorite sciences, astronomy and anatomy, the out-looking science and the in-looking, which developed side by side with the advance in optics. These two sciences met, poetically, in the ancient conceit of the microcosm and macrocosm, of the smaller circle within the larger, both wheels moved by the invisible hand of God. The microcosm was for Browne both a metaphor and an exact statement of a fundamental truth. His religious and poetic type of mind, as we know it from his first publication, *Religio Medici* (1642), must have been sympathetic to Harvey's new "circle" theory of the blood at an early stage in his study of anatomy.[3]

In this great book, recommended to all physicians by Sir William

* The University of Michigan.

[1] Douglas Bush, *English Literature in the Earlier Seventeenth Century*, Oxford, Clarendon Press, 1945, p. 332, calls this Browne's favorite metaphor.

[2] I want to express here my appreciation to Dr. Owsei Temkin for his personal help and to refer to his article "Metaphors of Human Biology," which appeared in *Science and Civilization*, ed. Robert C. Stauffer, Madison, Wis., University of Wisconsin Press, 1949, pp. 169-194.

[3] In exploring his circle metaphor I make no claims for Browne's originality. The researches of Marjorie Nicolson for her series of Northwestern University Lectures entitled "The Breaking of the Circle" (Summer, 1950), and of E. S. Merton in *Science and Imagination in Sir Thomas Browne*, New York, Columbia University Press, 1949 show that Browne was a late comer to the long tradition of the symbol of the circle.

Osler, Browne states that beyond all the attempts of preachers to define God, he likes best " that allegorical description " of Hermes Trismegistus —God is a circle whose circumference is everywhere and whose center is nowhere.[4] Browne's faith is a humble one that follows " the great wheel of the Church." [5] Not to mesh one's own life in that greater wheel and that wheel in the wheel of God,[6] is to lose its even motion for the chaotic jerkiness of one's private understanding. Heretics and atheists are " . . . unstable Judgments that cannot consist in the narrow point and centre of Virtue without a reel or stagger to the Circumference." [7] In the first paragraph of his introduction to *Vulgar Errors*, he warns us:

> And therefore in this *Encyclopaedia* [8] and round of Knowledge, like the great and exemplary Wheels of Heaven, we must observe two Circles: that while we are daily carried about, and whirled by the swing and rapt of the one, we may maintain a natural and proper course, in the slow and sober wheel of the other.[9]

This epicycle figure is central to Browne's ideas on the relationship between universal law and individual liberty.

Because all things, as a first principle, begin and end in God, there is a justness in Plato's picture of birth and death as two points in the circumference of a circle. The concept of time is circular, since it is the nature of the Sun to make a revolution every day.[10] Hence:

> . . . the lives, not only of men, but of Commonwealths, and the whole World, run not upon an Helix that still enlargeth, but on a Circle, where arriving to their Meridian, they decline in obscurity, and fall under the Horizon again.[11]

Death repeats the Creation, when God gave form to formless matter;

[4] *Religio Medici*, ed. Geoffrey Keynes in *The Works of Sir Thomas Browne*, 6 vols., Vol. I, London, Faber and Gwyer, 1928, Part I, sec. 10, p. 14. Cf. *Christian Morals, ibid.*, part III, sec. 2, p. 134. To Browne this is no hyperbole since words cannot exceed if they cannot express enough.

[5] *Rel. Med.*, I, 6 (Hereafter all references will be to the Keynes edition by part and number only.) Alexander Ross, *Medicus Medicatus*, London, 1645, p. 9, countered: " . . . but this Wheele is sometime out of order."

[6] Cf. *Ezekiel*, I, 15-16: " Now as I beheld the living creatures . . . their appearance and their work was as it were a wheel in the middle of a wheel."

[7] *Rel. Med.*, 1, 3.

[8] This term which so explicitly states the circle-concept is the title of the vast collection of Alexandrian ideas common to Christian, Jewish, and Arab writers, compiled at Basra in the tenth century. In this corpus the theory of the microcosm first becomes imposing.

[9] Ed. Keynes, vol. II, p. 3.

[10] *Rel. Med.*, I, 15.

[11] *Ibid.*, I, 17.

only by death can the form of our bodies become formless once more, until the resurrection of the saints (another birth).[12] Mind lives forever and Mind is God. God is not subject to the circle but moves it. "That mass of flesh that circumscribes me, limits not my mind. . . I take my circle to be above three hundred and sixty. . . ." [13] Wherever God manifests Himself, ". . . there is Heaven, though within the circle of this sensible world." [14]

Thus Browne is in a circle inside a circle: ". . . in mine own reason, and within my self, I can command that which I cannot intreat without my self, and within the circle of another." [15] The smallest circle is the womb of our mother—"that other World, the truest Microcosm," [16] and we pass from that, through the world, at last into the womb of God through three stages—sense, philosophy, and spirit.[17] These respective circles can be limitations, or as Browne calls them, "circumscriptions." [18] Sense limits reason, and reason limits faith. We are still free as children of God to refine our sense by means of our reason and pursue our reason to an "O altitudo." "There is no man alone, because every man is a Microcosm, and carries the whole World about him." [19]

A twentieth century medical historian like Dr. Charles Singer can write:

> The work of Copernicus removed the earth from the center of the Universe: that of Vesalius revealed the real structure of man's body. Between the two they destroyed forever the favourite medieval theory of Macrocosm and Microcosm.[20]

For Browne, however, who was learned in astronomy and well trained in the medical tradition of Vesalius at Padua, the poetic values of the macro- and microcosm were far from destroyed.

[12] Cf. *Hydriotaphia, or Urn Burial*, in *Works*, ed. Keynes, 1929, vol. IV, p. 45 (ch. V): "Circles and right lines limit and close all bodies, and the mortal right-lined-circle must conclude and shut up all." This alludes to the hieroglyph Θ of *thanatos* or death.

[13] *Rel. Med.*, II, 11.

[14] *Ibid.*, I, 49. Cf. *ibid.*, I, 44: "Certainly there is no happiness within this circle of flesh, nor is it in the opticks of these eyes to behold felicity."

[15] *Ibid.*, II, 4.

[16] *Ibid.*, I, 39.

[17] *Ibid.* Cf. *Christ. Morals*, III, 14 (Keynes, I, 144): "In thine own circumference, as in that of the Earth, let the Rational Horizon be larger than the sensible, and the Circle of Reason than of Sense. . . . Otherwise 'tis but to live invertedly, and with thy Head unto the Heels of thy Antipodes."

[18] *A Letter to a Friend* (Keynes, I, 177).

[19] *Rel. Med.*, II, 10.

[20] *The Evolution of Anatomy*, New York, A. A. Knopf, 1925, p. 122.

Not to burden this paper with literary sources—which Browne picks from a wide reading in Plato's *Timaeus*, Plotinus, Galen, the Hermetic writings, Orphic mysteries, Cabbala, and Paracelsus—there is something to be gained if we let Copernicus and Harvey become emblems, as it were, of Browne's two most beloved sciences—astronomy and anatomy, of the larger circle about us and the smaller circle which is ourselves, the macro- and the microcosm.[21]

For the medical student in the first part of the seventeenth century, raised on readings in Galen, it became natural to link the sciences of the large and the small world. A central point in Browne's *Religion of a Doctor* is this reference to Galen's *De Usu Partium*: ". . . there appears to me as much Divinity in Galen his books *De Usu Partium*, as in Suarez Metaphysicks." [22] Galen, in the famous hymn of Book III, ch. x, argues that the Creator's wisdom is shown in the smallest animal as well as in the Universe: ". . . the ancients who were familiar with nature held that the animal itself was, so to speak, a little universe." [23]

This analogy between the cosmos and physiology is common from Hippocrates' writings of the fifth century B. C. to Giordano Bruno (1548-1600).[24] Hippocrates compares the earth with our bones, the air with flesh, and the rivers with blood.[25] And over two thousand years later Giordano Bruno, a Copernican, writes into his poem *Del' Infinito, Universo e Mondi* (1584) the identity of cosmic nature with ourselves: its rocks, rivers and mountains are like organs of the human body, its earthquakes and storms are diseases.[26] In the poems of *De Immenso* (1591) Bruno suggests that there is a *circulation* in ourselves as well as in the orbits

[21] The most valuable treatise on the microcosm is George P. Conger, *Theories of Macrocosms and Microcosms in the History of Philosophy*, New York, Columbia University Press, 1922. See the Hermetic circle-figure on p. 240.

[22] *Rel. Med.*, I, 14. The influence of Galen's principle of anatomical utilitarianism on Browne's religious thinking is the subject of research I am now doing.

[23] Translated by A. J. Brock, *Greek Medicine . . . Hippocrates to Galen*, London, J. M. Dent & Sons; New York, E. P. Dutton & Co., 1929, p. 156.

[24] Cf. the articles by Dr. Walter Pagel, "The Circular Motion of the Blood and Giordano Bruno's Philosophy of the Circle," *Bulletin of the History of Medicine*, vol. 24, 1950, pp. 398-399; "Harvey's Role in the History of Medicine," *ibid.*, vol. 24, 1950, pp. 70-73; "William Harvey: Some Neglected Aspects of Medical History," *Journal of the Warburg and Courtauld Institutes*, vol. 7, 1944, p. 146. Cf. also John C. Curtis, *Harvey's Views on the Circulation of the Blood*, New York, 1915, pp. 44 ff. (cited by Temkin, *op. cit.*, p. 190).

[25] John Burnet, *Early Greek Philosophy*, 2nd ed., London, A. & C. Black, 1908, p. 49.

[26] Cited by J. L. McIntyre, *Giordano Bruno*, London and New York, Macmillan Co., 1903, p. 221 n.

of the heavenly spheres (V, ix). And he is only one of many who imaginatively, not scientifically, anticipate Harvey's fundamental proportion of

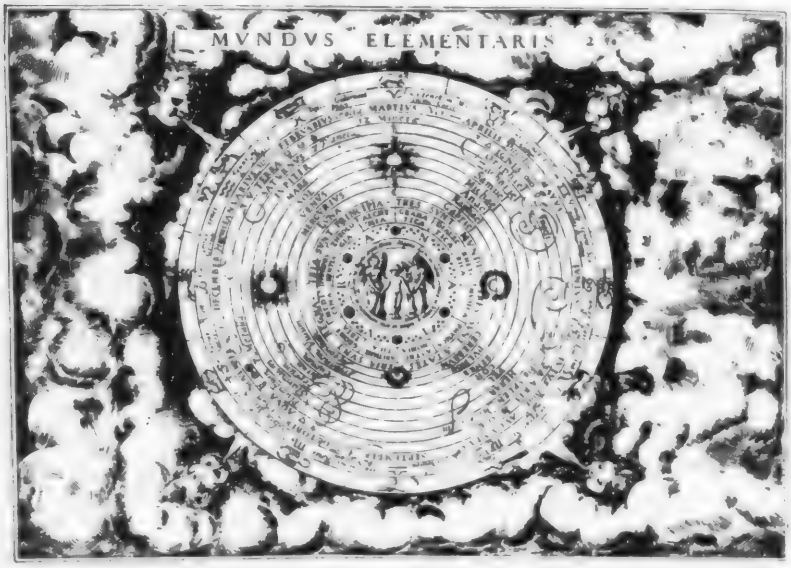

Fig. 1

A Typical Circular Figure (from Waite's *Hermetic Museum* vol. II, London, 1893, p. 300)

Starting at the outer ring with the signs of the zodiac and going inwards, we have the parts of man's anatomy assigned to particular heavenly influences, for example (at the very top): "Aries tenet in Microcosmo Caput" or Aries the ram governs man's head. In the third circle there are placed the months of the year and the four humours of man; in the fourth circle, the elements. The seven planets occupy the next seven concentric circles, from Saturn to the Moon, each planet governing one of the seven angels, one of the seven anatomical organs of man, and one of the seven metals. In the twelfth circle: "There are three principles, three worlds, three ages, and three kingdoms." Next come the arts, Theology, Alchemy, Grammar, etc. Then comes simply "Natura." And in the inmost circle a human baby with two protective angels. The inscription is: "Magna dignitas fidelium animarum ut unaquaeque habeat, etc.," or "It is the great honor of faithful souls that from their very birth an angel is appointed to preserve and keep each of them."

"the sun is to the universe as the heart is to the body."[27] These views are far from being original. Most thoughtful men of the Renaissance

[27] *De Monade, Numero et Figura*, part ii. The citations from Bruno come from Conger, *op. cit.*, pp. 60-62.

saw no occasion to dispute the ancient metaphor; in fact, new discoveries lent it cogency.[28]

Men like Paracelsus and Robert Fludd, the Rosicrucian, are hardly modern scientists. They imagined and set forth the relationship between man and his universe in drawings and descriptions of the little circle moving in harmony with the larger circle around him. The age-old and universal theory of the microcosm is symbolized by the melothesia [29] or zodiacal man, which assigns the human physiological organs to their various mansions in the sky. Fludd's great *Medicina Catholica* (1619-1631) is full of such pictures,[30] usually with the organs of the left side of the man's body oriented towards the north. Browne visualizes the relationship between God and man by means of this symbol. When the Doctor is less tropical and more "scientific," as in *Vulgar Errors*, he notes dispassionately that the theory that man is magnetic would ". . . much advance the Microcosmical conceit and commend the Geography of Paracelsus, who according to the Cardinal points of the World, divideth the body of man. . . ." [31] He knows it is a "conceit," but it has religious and aesthetic values.

The telescope developed before the microscope. After Copernicus, Bruno, and Galileo, for a while man must have been thrown off his orbit until comparative anatomy first and then the microscope reminded him that he himself, and even smaller creatures in the scale, were just as wondrously and fearfully made as the solar system.

Sir Thomas Browne knew well the larger world of astronomy, of the macrocosm, and its mathematic. "I know the names," he wrote, "and somewhat more of all the constellations in my Horizon; yet I have seen a prating Mariner, that could onely name the pointers and the North Star, out-talk me, and conceit himself a whole Sphere above me." [32] As late as 1680 he was interested in his son Edward's description of a comet, and

[28] In a similar way Bruno's monadism seems to have anticipated the analogy that is made by some modern physicists between the relative spaces in the universe and inside the atom.

[29] The term *Melothesia* is etymologically related to the concept of the music (*melos*, melody) of the spheres. The graphic tradition of the melothesia is beautifully explained in Charles Singer, "The Scientific Views and Visions of Saint Hildegard," *Studies in the History and Method of Science*, vol. I, 1917, p. 43.

[30] For an analysis of Fludd's philosophy cf. Walter Pagel, "Religious Motives in Medical Biology of the XVIIth Century," *Bulletin of the Institute of the History of Medicine*, vol. III, 1935, pp. 97-128, 213-231, 265-311, particularly the whole of sec. V.

[31] Book II, ch. 3, Keynes, II, 119.

[32] *Rel. Med.*, II, 8.

was reminded of the " very long tayle of a comet " which he had observed himself in 1618 when he was a thirteen-year old boy.[33]

Since then he had read carefully the comments on it of observers from the Royal Society. By its parallaxis, Sir Thomas tells his son, astronomers ". . . find out the comets distance from the earth, and in that of 1618 they found it to be as farre above the moone as the moone is above the earth. . . ." [34] To tell us that he is less than thirty years of age, Browne writes that he has not yet seen " one revolution of Saturn." [35] And " if there be any truth in Astrology," [36] he believed it not superstitiously but as part of the language of God. Insisting that he had been born under good stars, he thanked God for it.[37] He was also a friend of Dr. Arthur Dee, the son of Queen Elizabeth's notorious astrologer and alchemist, and he corresponded with Dr. William Lilly, whose *Christian Astrology* (1647) he had read.[38] Though a pagan astrologer might think that ". . . Affairs were ordered more by Stars than Reason, and that things went on rather by Lottery than Election," [39] a Christian believes that God orders all in the Plotinian scale of being from the orbits of the greatest planets down to the blood stream of the tiniest insect. If you believe that the primary attributes of God are his Wisdom and Eternalness,[40] then it must follow that you perceive your life within " this great wheel " to be watched over and measured by an all-wise, beneficient guardian Deity.

A man who gives evidence everywhere of being well read in astronomy must have known with Kepler (1609) that the heavenly bodies move no longer in circles but in ellipses. Yet the poetic scientist merely bends a little to take this invisible and unreal fact in. As Milton needs the old cosmos for his poem, so Browne finds that in spite of scientific truth the ways of man to God can be better illustrated by circles.

Since astronomy advanced with mathematics, from it, too, Browne culled his metaphor. Algebra and the calculus moved in circles, so to speak, whereas before mathematics had been a straight line. William Oughtred at Oxford applied logarithms to concentric circles as early as 1627, and became one of the inventors of the slide rule. His device was an eighteen-inch circle with a smaller disk that revolved within it—an exact, sensible depiction of the " epicycle." Pascal became famed for his

[33] *Letters of Sir Thomas Browne*, ed. Keynes, vol. VI, London, 1931, p. 201.
[34] *Ibid.*, p. 204.
[35] *Rel. Med.*, I, 41.
[36] *Ibid.*, I, 41.
[37] *Ibid.*, I, 17.
[38] *Letters*, ed. Keynes, VI, 324.
[39] *Christ. Morals*, I, 26, Keynes, I, 113.
[40] *Rel. Med.*, I, 10.

mathematical solution of the figure described by the head of a nail driven in the spoke, well within the circumference, of a moving wagon wheel. Delamain extended Oughtred's idea and called it *Grammalogia or Mathematical Ring* (1630). Oughtred's pupil, William Foster, published *The Circles of Proportion and the Horizontal Instrument* in London in 1632, dedicated to Sir Kenelm Digby.[41]

Browne was fascinated by wheels as they connect with the sun's time. In his *Vulgar Errors* in a context of the "Doctrin of circular motions," he quotes from Dr. John Dee's introduction to the first translation in England of Euclid's *Elements* (1570):

> By Wheels strange works and incredible are done: A wondrous example was seen in my time in a certain Instrument, therein was one Wheele that moved at such a rate, that in seven thousand years only his own period should be finished; a thing almost incredible, but how far I keep within my bounds, many men yet alive can tell.[42]

Such mechanical devices "composed by Trochilick or the artifice of wheels" [43] as chronometers and planetaria are imitations, on a small scale, of the revolutions of the heavenly bodies.

How deeply imbedded in our consciousness is the ancient cosmic wheel of the Indian *karma* or the wheel of Boethius' *De Consolatione Philosophiae*,[44] it would be difficult to assess. But a modern critic of the temper of Paul Elmer More enlists the metaphor in commenting on the uses of the *Religio Medici* against the encroachments of fatalism, ". . . which would reduce the circle of man's life to a mere wheel spinning for an hour in the vast unconscious mechanism of the world. . . ." [45]

In his youth the heavens and their mathematic had taught Browne the wonders of God, but anatomy and zoology as instances of God's skill in creation demanded "a more absolute piece of optiks." [46] Browne learned his anatomy at Padua, the center of European medical learning—the university that had fostered a Vesalius, an Acquapendente, a William Harvey. Though the northern Paracelus repudiated Galen's writings, in

[41] All of these citations with the exception of the allusion to Pascal are to be found in R. W. Gunther, *Early Science at Oxford*, Oxford, Clarendon Press, 1923, I, 149-151.

[42] Book V, ch. 18, end, Keynes, III, 132. Cf. Conger, *op. cit.*, p. 65.

[43] *Vulgar Errors*, book V, ch. 18, Keynes, III, 131.

[44] Norman Moore, *History of the Study of Medicine in the British Isles*, Oxford, Clarendon Press, 1908, p. 51, says that Boethius' book was read by physicians from Mirfeld to Sydenham.

[45] "Sir Thomas Browne," *The Nation*, vol. 86, 1908, p. 507.

[46] *Rel. Med.*, I, 49.

Italy there was no such break between the old and the new.[47] In the Italian renaissance astronomy and anatomy still seemed to be branches of a single knowledge. Harvey's discovery, though revolutionary, springs naturally out of an intellectual stream that was unbroken. It is true that Browne comparatively early accepted the new thesis because he had one of the best medical educations that his age could offer—Winchester, Oxford, Montpellier, Padua, and Leyden. But he also accepted it because he was used to the *analogy* of astronomy and anatomy. The new theory fitted into his experienced knowledge of the microcosm within the macrocosm, the smaller circle within the large.

By this very metaphor Harvey introduced his great discovery to the world. The dedication of his book to Charles I begins "Serenissime Rex, cor animalium fundamentum est vitae. . . . Most serene King. The heart of animals is the basis of their life, the principle of the whole, the Sun of their Microcosm, that upon which all movement depends, from which all strength proceeds."[48] And the first actual hint of the circulation theory comes in that modest sentence in Chapter VIII: "Coepi egomet mecum cogitare, an motionem quondam quasi in circulo haberet—I began to think whether there might not be a movement, as it were, in a circle." Once he has done this, he is off on the imaginative plane of comparison: "The heart, consequently, is the beginning of life: the Sun of the Microcosm, even as the Sun in his turn might be designated the heart of the World. . . ."[49] These words, repeated in the very center of a scientific argument of flawless cogency make good what might have been merely a fulsome piece of prose in a dedication to the king, and consequently dismissed by literal minds as mere rhetoric.

Like many scientific discoveries, Harvey's was rejected by the less imaginative of his colleagues.[50] Three years after the appearance of *De Motu Cordis*, Helkiah Crooke's *Mikrokosmographia, a Description of the Body of Man* (1631) followed Vesalius on the blood, not Harvey. True,

[47] Salvatore De Renzi, *Storia della Medicina Italiana*, 5 vols., Napoli, Filiatre-Sebezio, 1845-1848, reiterates this concept. Cf. the popular and brilliant historical analysis by Arturo Castiglioni, *The Renaissance of Medicine in Italy*, Baltimore, The Johns Hopkins Press, 1934.

[48] I have consulted the 1928 tercentenary reproduction of the first edition of *De Motu Cordis* and the translation by G. Moreton, Canterbury, 1894.

[49] Moreton, p. 50.

[50] It is salutary to recall that Sir William Petty said of Newton's *Principia*: "I have not met with one man that put an extraordinary value on the book" (quoted by Sir William Osler, *Harveian Oration*, 1906, p. 30).

Sir George Ent, Harvey's pupil and friend and later president of the Royal Society, defended the theory against Parisianus of Venice in 1641. But Alexander Reid did not incorporate the new theory until the fifth edition of his famous *Manual of Anatomy* in 1653. Similarly, Gresham Professor Thomas Winston had omitted Harvey from his posthumously published *Anatomy* Lectures in 1659 and 1664.[51]

As late as 1670, forty-two years after Harvey's publication and fifty-four years after his lectures on the circulation of the blood, Guy Patin, perhaps France's best known medical controversialist, voted in the negative on a public thesis wherein a student, one Cordelle, had dared to defend Harvey's theory. Significantly, Guy Patin expressed his veto in derogatory metaphors of Ixion's wheel: "La circulation du sang, son transport circulaire par les vaisseaux, c'est l'enfantement d'un esprit oisif, un vrai nuage qu'embrassent les Ixions pour procréer les Centaurs et les monstres."[52]

On the other hand, when Browne's *Religio Medici* first came to light in 1642 and 1643, one of the few voices raised against it was that of Alexander Ross, M. D., whose *Medicus Medicatus* was published in 1645. Among its many animadversions is one series devoted, of all things, to Browne's misuse of metaphor. Quoting from the *Religio* the phrase "that streight and regular line, that settled and constant course the wisdom of God,"[53] Ross overlooks Browne's context and full intention[54] and asks:

> And why is Nature rather a straight, then a circular line? We see the world is round, the motions of the heavens and starres are circular, the generation and corruption of sublunary bodies is also circular; the corruption of one being still the generation of another: snow begets water, and water begets snow; the rivers returne to the sea, from whence they flow. . . .And what say you to the circulation of the bloud in our bodies?[55]

[51] Cf. *Bibliotheca Osleriana*, Oxford, Clarendon Press, 1929, pp. 72-84.

[52] Félix Larrieu, *Gui Patin*, Paris, 1889. Opposed to this is Dryden's famous poem to Dr. Charleton in 1663, *The Poetical Works of Dryden*, ed. Christie, London and New York, 1893, p. 304:

> The circling streams, once thought but pools, of blood
> (Whether life's fuel or the body's food),
> From dark oblivion Harvey's name shall save;
> While Ent keeps all the honor that he gave.

[53] *Rel. Med.*, I, 16.

[54] Browne's immediately following sentence concerns the "revolution" of the Sun; and the whole context is one of God the geometrician who can divide a line by a stroke of his compass but who sometimes chooses "a circle or longer way."

[55] Ed., 1645, pp. 21-22.

Here Alexander Ross, by means of the metaphor of the circle, unifies the large and the small world: the movement of the heavens, the motion of time, globular geography, *and* Harvey's discovery of the circulating blood-stream in man.

Others in the seventeenth century did the same thing. Zachariah Wood, for example, drew a comparison between Drake, who first went around the large world, and Harvey, the surmiser of the little world within.[56] Near the end of the century Sir William Temple linked Copernicus and Harvey: "There is nothing new in *Astronomy*, to vie with the *Ancients*, unless it be the *Copernican* system; nor in *Physick*, unless *Harvey's* Circulation of the Blood. . . ."[57] That miracle-believing physician, Baldwin Hamey, who gives us in the manuscript *Bustorum Aliquot Reliquae* biographical information on some fifty contemporary doctors from the year 1628, concluded a brief life of William Harvey with this epigram:

> That according to the opinion of Copernicus as to the motion of the earth and of Harvey as to the movement of the blood we are here—
>
> Ἐν τε τροχῷ πάντες καὶ ἐνὶ πᾶσι τροχοί.
>
> In Latin—
>
> Tunc agit atque agimus nos rota nosque rotam;
>
> or in English—
>
> Then are we all in a wheel and a wheel in us all.[58]

It was this metaphorical process of thought that seems to have led Robert Fludd, the Rosicrucian, early to accept Harvey's discovery in the face of its rejection by many great "scientific" minds. Commenting on Fludd's *Medicina Catholica*, Dr. Pagel says:

> The result of this generally symbolical and analogical point of view is Fludd's definite acceptance of the new theory of the circulation of the blood. Like the world in its orbit, the blood circulates in its vessels, obeying the systole and diastole with a movement resembling the ebb and flood of the tide. . . . How could it be otherwise, since it is absolutely certain that the spirit of life retains an impression both of the planetary system and of the zodiac?[59]

No one knows how soon after 1628 Thomas Browne accepted Harvey's theory. The earliest written proof that he had accepted it comes in a

[56] Osler, *Harveian Oration*, p. 28.

[57] "An Essay upon the Ancient and Modern Learning" in *Miscellanea*, vol. II, London, 1731, p. 162.

[58] Quoted by Norman Moore, *op. cit.*, pp. 2-3.

[59] Pagel, "Religious Motives in Medical Biology," *op. cit.*, pp. 277-278.

letter to his protegé, Dr. Henry Power of Halifax, written in 1646: "And be sure you make yourself master of Harvey's piece *De Circul. Sang.*; which discovery I prefer to that of Columbus." [60] Though this "Columbus" may be the great anatomist Columbus Realdus of Cremona, it is more likely that Browne refers to the "great circle" voyage of Christopher Columbus, and is here opposing a discovery in the macrocosm to one in the microcosm—the creation of God in the large to the "fabrick" of God in the smaller world.[61]

If so, then Thomas Browne, M. D., was ready to accept Harvey's thesis long before 1646. There was room for it in the metaphorical circles of his religious philosophy. Before he was thirty, that is about 1634, he had written: ". . . to call ourselves a Microcosm, or little World, I thought it only a pleasant trope of Rhetorick, till my neer judgement and second thoughts told me there was a real truth therein." [62]

[60] *Letters*, vol. VI, p. 277. Power was to become the author of the first book in England on microscopy. The date of this letter is based on Power's reply which is dated "1646." But there is a curious anticipation on Browne's part of Harvey's title. Though the running headlines of the 1639 *De Motu Cordis* are "De motu sanguinis in corde," the actual title *De Circulatione Sanguinis* was not added to the *De Motu Cordis* until the 1649 Cambridge and Rotterdam editions with the answer to John Riolan the Younger (cf. Keynes, *Bibliography of Harvey*, No. 8). In a personal reply to my bibliographical query Dr. Keynes writes: "Sir T. B. may have supplied his own variation since 'De circulatione sanguinis' is indeed the subject of Harvey's piece."

[61] Browne's consistent use of the term "fabrick" when referring to the human body, with its definite implications of the existence of a divine "Maker," may have come to him during his medical studies at Padua from the title of Vesalius' great work *De Humani Corporis Fabrica.*

[62] *Rel. Med.* I, 34. Van Helmont said of Paracelsus: "To wit, he translated the Metaphor of a Microcosme into the truth itself." in *Oriatrike*, London, 1662, p. 237, as quoted by Temkin, *op. cit.* (see footnote 2), p. 193.

THE ROLE OF SURGERY IN THE RISE OF MODERN MEDICAL THOUGHT *

OWSEI TEMKIN

Sir Clifford Allbutt in an address on *The Historical Relation of Medicine and Surgery to the End of the Sixteenth Century*, delivered at St. Louis in 1904, tried to show the benefit medicine had derived from its connection with surgery. In writing this paper he was motivated by the professional separation of the two branches of the healing art then still existing in England. The essay gives the impression that the surgeon from antiquity to the renaissance was much closer to modern medical thought than his contemporary medical colleague who indulged in unverifiable speculations.

There is a good deal of persuasiveness in Allbutt's book. The great surgical works of the past, beginning with the Smith papyrus, speak a language which is more familiar to us than that of the philosopher physicians. Even in the Hippocratic collection, the surgical chapters can, on the whole, more easily be translated into our diagnostic schemes than the clinical descriptions of other diseases. Now if modern medicine really is more akin to older surgery than to older internal medicine, the question may well be raised whether this kinship can possibly be explained, in part at least, by the role of surgery in the rise of modern medical thought. I trust that you will allow a medical historian to take the word "modern" in a broad sense, for I intend to limit my discussion to the period from about 1700 to 1830, from the time of the great Dutch clinician, Boerhaave, to the height of the so-called Paris school. And since this school, in some respects, was leading at the turn of the century, I shall largely dwell on French developments.

That surgeons were of influence will easily be conceded: the name of John Hunter alone would suffice. But it is not so easy to imagine that men like Corvisart and Laennec could be indebted to the rough sawbones of the wars of the Spanish succession, or even that the latter had much in common with the elegant Paris surgeons of around 1830. To weaken these objections we must remove two misunderstandings, viz. that the domain of surgery, in the eighteenth century, was the exclusive possession

* Read at a meeting of the Johns Hopkins Medical History Club on March 5, 1951.

of the guild-surgeons and that operations with the knife accounted for all surgical activity.

In Germany, until the last third of the 18th century, the old distinction prevailed between "medical surgery," represented by university graduates, without practical experience of their own, and "practical surgery," as represented by uneducated barbers and feldschers who practised surgery with little insight into their art.[1] Lorenz Heister who mastered both medicine and surgery was an exception. Only toward 1770 did the distinction begin to disappear and practical surgery become an academic discipline. In England conditions were different. The doctor of medicine, as in Germany, usually refrained from surgery which was exercised by the barber-surgeon who might be an apothecary at the same time, thus engaging in general practice. From this group there emerged the great hospital surgeons, consultants of a high professional rank who dominated the Surgeons' Company, founded in 1745,[2] and, for some time, also its successor, the College of Surgeons.[3] Though in 1745 the association with the barbers had come to an end, the majority of the members of the Company or College continued to represent the general practitioner. The surgeon Lydgate in George Eliot's *Middlemarch* is a good example of this type of a somewhat later period.

In Italy, on the other hand, the home of the great surgeon-anatomists of the Renaissance, medicine and surgery had long lived in close proximity. Outside of Italy, it was mainly the Netherlands where not only the new clinical teaching was developed in the 17th century, but where anatomy, both normal and pathological, and surgery were closely drawn into the orbit of the medical sciences. Although Holland too had its surgical guilds, quite a number of graduated doctors of medicine devoted themselves to anatomy and surgery. Rau, Albinus, Peter Camper, Sandifort may here be mentioned in the first place. Ruysch designated himself as a professor of anatomy and surgery.[4] In his practice he seems to have been helped by master surgeons although he was not above lending a hand him-

[1] Lorenz Heister, *A general system of surgery*, translated into English from the Latin of Dr. Lawrence Heister, London, 1743, p. 2 f.

[2] Cecil Wall, *The history of the Surgeons' Company*, 1745-1800, London, 1937, pp. 88 ff. and 73 ff.

[3] S. Squire Sprigge, *The life and time of Thomas Wakley*, London, New York and Bombay, 1897, see especially ch. 18.

[4] "Observationum anatomico-chirurgicarum centuria," Dedication, p. 2 r.: ". . . jam ab Annis viginti et ultra exerceo Anatomes et Chirurgiae Professionem. . . ." In *Frederici Ruyschii opera omnia anatomico-medico-chirurgica*, vol. 1, Amsterdam, 1721.

self.[5] At any rate, his knowledge of surgery was such that only a formal distinction could exclude him from this field.

Most interesting, however, is the situation in France. Largely under the influence of such works as Quesnay's *Recherches critiques*,[6] our attention has centered upon the struggle between the Paris faculty of medicine and the Paris surgeons, who, in 1731, founded the Académie Royale de Chirurgie. Granted that the gulf between surgeons and physicians was wide and that among the latter many were woefully ignorant of anatomy and surgery, the fact remains that here—as in the Netherlands—some doctors overcame the separation. Littre,[7] Poupart,[8] Pourfour du Petit,[9] and Antoine Petit[10] were skilled in both domains. Du Verney and Winslow were above all anatomists, but both taught surgery and Du Verney's *Diseases of the Bones* is a surgical work devoting much space to the setting of fractures and reducing of dislocations. Even among some of the French physicians who had no official connection with surgery, the interest in this branch documented itself in their writing. Senac, for instance, body physician of Louis XV and author of a classical treatise on the heart, is said to have brought out in his young years a French edition of Heister's anatomy and an essay on lithotomy.[11] Small wonder, then, that Brocklesby, an English army physician, in 1764 could write:

> For as no nation of this age have pretended to superior knowledge in surgery so much as the French, so they are known to be generally the most ignorant and worst Physicians in Europe, ever since their Surgeons came to impose and obtrude their pretenses, in the knowledge of anatomy, upon the world, as the perfection of medical science.[12]

The French revolution in abolishing different schools for doctors and

[5] See, e. g., *ibid.*, "Observatio XLII," p. 41.

[6] François Quesnay, *Recherches critiques et historiques sur l'origine, sur les divers états et sur les progrès de la chirurgie en France*, Paris, 1744.

[7] "Eloge de M. Littre," *Histoire de l'Académie Royale des Sciences, année MDCCXXV*, Paris, 1727, p. 133.

[8] "Eloge de M. Poupart," *ibid., année MDCCIX*, Paris 1733, p. 126.

[9] "Eloge de M. Petit, Médecin," *ibid., année MDCCXLI*, Paris, 1744, p. 171.

[10] Article "Petit (Antoine)" in *Dictionnaire encyclopédique des sciences médicales*, deuxième série, t. 23, Paris, 1887, p. 759: "Quoi qu'il se fût livré spécialement à la médecine, cependant on le vit aussi faire plusieurs opérations chirurgicales avec beaucoup d'habileté."

[11] Article "Senac (Jean-Baptiste)" in *Nouvelle biographie générale*, t. 23, Paris, 1864, col. 740 f. Where my information on the surgical activities of the Dutch and French doctors named is derived from general reference works, verification through source material not at my disposal remains a desideratum.

[12] Richard Brocklesby, *Oeconomical and medical observations*, London, 1764, p. 88.

surgeons, abolished outworn external distinctions. But medicine and surgery had been in contact before the revolution, and the surgical specialist existed afterwards too. There remained the necessity for the great surgical operator to have special training and there remained the lack of necessity for the internist to learn techniques he did not use. This had been so before the revolution [13] and remained true afterwards, in France as well as elsewhere, even in the United States where a professional distinction had never taken deep roots.

Long before the 18th century, surgery as a discipline had not been limited to the guild surgeon and in the course of the 18th century the contacts of physicians with surgery increased in many countries. The interest of the doctor, even if he did not himself operate, must not be underrated. The growth of surgery is not understandable if the work of Monro, Haller and others who kept in close touch with the discipline of surgery is disregarded. This remains true in spite of the fact that the guild surgeons usually included in their ranks the great surgical operators. Amongst them, of course, the French excelled. In the diaries of his travels in Holland, England, France, and Germany, between 1725 and 1728, Albrecht von Haller has left us interesting accounts of their work. Under the date of September 21, 1727 (Paris), Haller writes:

> Saw the excision of a cancer of the lip. A great deperdition was needed and, since two sutures had to be made, I was bored. They also opened an abscess behind the ear, cut away the callosities etc. yet found hardly any pus, only had a bloody wound. O wonders of man.[14]

The patient with cancer of the lip died. A great many operations were followed by death, and post-mortem reports seem to fill much space. The entries sound depressive enough and it is said that these experiences restrained Haller from ever practising surgery [15] so that he limited himself to teaching it.

This agrees with the picture we usually have of surgery of the pre-antiseptic era. The most ingenious operations come to naught because the patient succumbed to infection or shock. There is a good deal of

[13] According to Paul Delaunay, *Le monde médical parisien au dix-huitième siècle*, Paris, 1905, p. 199 f., even Antoine Petit, in 1757, stated that one could not properly practice medicine or surgery without specializing in one or the other, although he considered both as branches of the one healing art.

[14] Albrecht Haller, *Tagebuch der Studienreise nach London, Paris, Strassburg und Basel 1727 bis 1728*, mit Ammerkungen herausgegeben von E. Hintzsche, Bern, 1942, p. 26 (Berner Beiträge zur Geschichte der Medizin und der Naturwissenschaften, Nr. 1).

[15] *Ibid.*, p. 44.

truth in this view. But the marvellous progress of surgery since Lister has also tempted us to an unjust disparagement of older surgery—unjust, if only because surgery never was identical with major operative surgery. Let us not forget the everyday cure of wounds, inflammations, ulcers, dislocations, and fractures; the removal of foreign bodies; catheterization, as well as scurvy, diseases of the eyes and ears, skin diseases, and venereal diseases, the treatment of which the surgeon shared with the physician. Of course, surgical infections occurred frequently, though not as often as is commonly assumed, provided that the treatment took place outside the large hospitals. I even venture to say that, in the period under discussion, the treatment of external disorders, as surgical diseases were sometimes called, was therapeutically more effective than the treatment of internal diseases.

Having thus dealt with preliminaries, we have to consider the possible role surgery as a discipline played in the formation of medical thought. We shall begin with a few brief remarks on the progress of practical surgery between 1700 and 1830.

Considerable improvements were made in the technique of such major operations as amputations and herniotomy, in the diagnosis and treatment of fractures, diseases of the joints and urinary apparatus, of the eye, ear and the teeth. Some disorders became better understood and could be attacked surgically, to mention but Dupuytren's contracture. An almost new field was opened by Delpech with orthopedic surgery and the technique of subcutaneous tenotomy and myotomy. But, above all, the second half of the eighteenth century witnessed an increased determination of surgeons to save organs and their functions and to limit mutilating or cruel operations. The history of heroic ligatures of major blood vessels in severe hemorrhage or arterial aneurysm is too well known to need recounting here. It begins before Hunter and extends far into the nineteenth century. Conservative bone surgery originated with attempts to amputate as near the affected part as possible. It culminated in 1768 in the work of Charles White in Manchester who, in a case of osteomyelitis of the proximal end of the humerus, sawed off this part, preserving the arm; and Park in Liverpool who, in 1781, followed a similar course in resecting the knee joint of a sailor. In addition we might here mention the preference for lithotrity as against lithotomy, and the revival of plastic surgery by Carpue in London in 1814 and Karl von Gräfe in Berlin two years later. On the other hand, the development of operative procedures in conservative surgery was paralleled by the tendency to limit operations altogether. The

book of the Prussian army surgeon, Bilguer, *On the inutility of the amputation of limbs*, published in 1761, inveighed against the innumerable amputations on the battlefield and created a sensation. Some surgeons came to feel that operations should be an ultima ratio. In his surgical lectures, John Hunter said:

> This last part of surgery, namely, operations, is a reflection on the healing art; it is a tacit acknowledgement of the insufficiency of surgery. It is like an armed savage who attempts to get that by force which a civilized man would get by stratagem.[16]

The stratagem consisted mainly in closer attention to the causes of disease and the constitution of the patient. For while the internist, through lack of training, could not easily compete with the surgeon where operations were involved, the surgeons, on the other hand, were not averse to prescribing both regimen and drugs for their patients.[17]

To what factors then can we attribute this manysided development? In the first place, to the ambition, inventiveness, and courage of individual surgeons. Second, to the general progress of civilization which revolted against cruelty in law as well as in medicine and, at the same time, agitated for a higher educational standard for surgeons and a more practical training for physicians. And, above all, to the advance of anatomy, both normal and pathological, and experimental physiology.

It is a fact, generally acknowledged, that "many of the best anatomists of the 18th century . . . were so-called surgeon-anatomists."[18] This is true of Albinus of Leyden to whom his pupil, Haller, gave high praise, noting also his neatness and that he always worked with cuffs on his hands. "This cleanliness," Haller added, "is of greater necessity than one might think, as anybody experiences who, at Paris, has helped the French pigs in their work."[19] This uncharitable remark probably referred to Le Dran[20] and possibly also to Winslow who was teaching anatomy at the Jardin des Plantes where Du Verney and Pierre Dionis had also been active. Paris was the main seat of anatomical research in the first

[16] *The works of John Hunter*, edited by James F. Palmer, vol. 1, London, 1835, p.210.

[17] This holds especially true of Great Britain, see Wall, *op. cit.*, p. 89.

[18] Fielding H. Garrison, *An introduction to the history of medicine*, fourth edition, Philadelphia and London, 1929, p. 332. See also above, p. 249 f.

[19] *Albrecht Hallers Tagebücher seiner Reisen nach Deutschland, Holland und England (1723-1727)*. Herausgegeben von E. Hintzsche. St. Gallen, 1948, p. 44. Regarding the cleanliness of the Dutch medical men see also H. Haeser, *Lehrbuch der Geschichte der Medicin*, 3. Bearbeitung, vol. 2, Jena, 1881, p. 653.

[20] Haller, *ibid.*, footnote 63.

half of the century. Much of the work of its early surgeon-anatomists is published in the volumes of the Académie Royale des Sciences which, like its English sister body, was interested in useful science rather than the social provenience of its members. Here Littre described a case of primary thrombosis in the pulmonary vein or left atrium of the heart, later quoted by Virchow;[21] here, in 1710, he also mentioned the possibility of making an artificial anus.[22] Incidentally, this suggestion was put into practice in 1776 by Pillore of Rouen and perfected by Amussat in Paris in 1839,[23] another example of continuity, even in intestinal surgery. We also find in the publications of the Académie the beautiful experimental work of Pourfour du Petit on the sympathetic innervation of the eye,[24] and a host of anatomical and physiological contributions by Méry who, until his death in 1722, had worked at the Hôtel Dieu. Many of these reports appeared under the section of "Anatomy," the common scientific denominator for surgery, obstetrics, anatomy, experimental physiology, and pathological anatomy.

The remark has been made that "even long after the publication of Morgagni's great work (1761) surgical pathology had no real existence."[25] This statement seems to overlook a basic fact. Long before Morgagni, surgeons had to rely on physical signs in their diagnosis and had to correlate the clinical picture to structural changes. In other words, they did exactly what the schools of Paris and Vienna were to achieve with regard to internal diseases. Wounds, ulcers, abscesses, gangrene, and tumors on the surface of the body presented themselves to the eye or to the palpating finger and the probe. The ends of broken bones could be felt, crepitation could be heard, the transparency of a scrotal tumor in case of hydrocele could be seen. The surgeon could hardly operate for hernia, aneurysm, cataract, or lacrimal fistula without visualizing a localized structural change. He engaged in anatomical work not just because he was fond of dissecting but because the knowledge of structure, both normal

[21] "Sur une mort subite," *Histoire de l'Académie Royale des Sciences, année MDCCI*, Paris, 1743, p. 25 ff. Rudolf Virchow, *Thrombose und Embolie*, eingeleitet von Rudolf Beneke, Leipzig, 1910, p. 66, footnote (Klassiker der Medizin, Band 7-8).

[22] *Histoire* etc. *année MDCCX*, Paris 1732, p. 36 f.

[23] J. Z. Amussat, *Mémoire sur la possibilité d'établir un anus artificiel*, etc., Paris, 1839. See also Zachary Cope, *Pioneers in acute abdominal surgery*, London, 1939, pp. 29-46.

[24] "Mémoire dans lequel il est démontré que les nerfs intercostaux fournissent des rameaux qui portent des esprits dans les yeux," *Histoire de l'Académie Royale des Sciences, année MDCCXXVII*, Paris, 1729; Section "Mémoires," pp. 1-19.

[25] Garrison, *op. cit.*, p. 344.

and morbid, was essential to him. This becomes apparent from the writings of men like Jean Louis Petit, the great surgeon of the College of St. Côme, no less than from those of Cheselden and Pott. Even physicians who were skeptical of the value of anatomy for internal medicine readily admitted its necessity for the surgeon. Barchusen, in 1723, agreed that anatomy demonstrated the "obstructions of the viscera as well as any part of the body that is ulcerated, suppurating or filled with stone, polyp, worms or similar bodily vices," and that such knowledge was necessary to the surgeons "for the restitution of dislocated limbs or broken bones and for the cure of the wounds of viscera and other parts of the body. For if ignorant of anatomy, the surgeon will by no means be fit for trephining of the skull, laryngotomy, paracentesis and the performance of similar operations full of danger." [26] This was but stating the obvious. It might be added that even the law, for centuries past, required the surgeon to testify in court.[27] Heister sounded a note only too familiar to us when he printed a form which the young surgeon could follow in writing his post-mortem report for the authorities.[28]

It will then be agreed that the surgeons studied anatomy and that they enriched medical literature with their discoveries and observations of use to every medical man. But it will be asked whether their contributions, with the exception of Hunter's, really were so great as to merit comparison with such works as Morgagni's *De sedibus et causis morborum*. And Morgagni was not a practising surgeon.[29] The answer is that the surgical point of view more perhaps than the contributions of individual surgeons played the decisive role. Here too we can refer to a physician, the great Boerhaave, who in his *Aphorisms* first discussed the surgical diseases and before turning to internal diseases remarked:

> Whoever therefore has so thoroughly understood the diseases already described, and laid before his eyes, as to be well acquainted with their several causes, nature,

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[26] Joh. Conr. Barchusen, *De medicinae origine et progressu dissertationes*, Trajecti ad Rhenum, 1723, p. 131.

[27] See Erwin H. Ackerknecht in *Ciba Symposia*, vol. 11, no. 7, 1950, pp. 1287, 1290.

[28] Heister, *op. cit.*, p. 33. Heister had, of course, a much older forerunner in Ambroise Paré (*Oeuvres complètes*, ed. J.-F. Malgaigne, vol. 3, Paris, 1841, p. 655 ff.).

[29] J. B. Morgagni. *The seats and causes of diseases investigated by anatomy*, translated by Benjamin Alexander, vol. 3, London, 1769, p. 34: "And as you know very well, how much this profession (i. e. surgery) was lov'd and cultivated by Valsalva, you perhaps expect a great number of observations; if not from me, whom you know not to be form'd, by nature, for the cutting of living bodies, as I am for that of dead bodies, yet at least from him" (book IV, letter 50). Morgagni is here referring to "tumours, wounds, ulcers, and others that relate to surgery" (*ibid.*).

effects, and method of cure; and has applied all these particulars to the internal and unseen parts of the body; and compared them with the actions of the sound parts, and afterwards with the several appearances of internal diseases, will find that what is internal corresponds exactly with what is external; that external diseases, which fall under the surgeon's care, ought first to be treated of; and that otherwise nothing regular or just could be performed or advanced in the practice of physick.[30]

These words of Boerhaave's need little elaboration. The internist dealt with symptoms which he wished to explain. This he could do by reference to humors, acrimonies, increased irritability or other concepts of a largely speculative general pathology. Or, with Morgagni and his followers, he could look for the proximate causes of disease in the body. These causes, upon dissection, revealed themselves as effusions, hemorrhages, tumors, abscesses, ulcers, inflammations—in short he found within the body what the surgeon found on its surface.

Fortunately we possess the testimony of Laennec himself to substantiate our claim for the role of surgery in the rise of modern medical thought. In the second edition of his *Traité de l'auscultation médiate*, Laennec summed up the aim of his research: "In one word, I have tried, with regard to diagnosis, to put the internal organic lesions on the same level as the surgical diseases."[31] And Bouillaud seconded Laennec's words by saying: ". . . in heart and lung diseases, the ear, if I may so express myself, *seeing* and *touching* these organs, by means of an attentive examination picks up signs which, as Laennec said, render the diagnosis of most of the diseases in question as certain as that of some surgical diseases such as fractures and dislocations."[32]

[30] Gerard van Swieten, *The commentaries upon the Aphorisms of Dr. Herman Boerhaave*, vol. 4, London, 1745, p. 436. In beginning with surgical disorders Boerhaave was no innovator. Galen too had started the detailed discussion of diseases in his "Methodus medendi" with wounds and ulcers, as the "simplest" (*Opera*, ed. Kühn, vol. 10, Leipzig, 1825, p. 162). Here again we have to emphasize that the eighteenth century did not mark a revolutionary beginning in pathology. But whereas ancient and medieval physicians had usually been satisfied with postulating inflammations, ulcerations, abscesses, etc. of internal organs, medical men from the Renaissance on began more and more to rely on autopsy.

[31] R.-T.-H.-Laennec, *Traité de l'auscultation médiate*, seconde édition, t. 1, Paris, 1826, p. xxv: ". . . en un mot, j'ai tâché de mettre, sous le rapport du diagnostic, les lésions organiques internes sur la même ligne que les maladies chirurgicales. . . ."

[32] J. Bouillaud, *Essai sur la philosophie médicale et sur les généralités de la clinique médicale*, Paris, 1836, p. 86: "C'est ainsi, par exemple, que, dans les maladies des poumons et du coeur, l'oreille, s'il m'est permis de parler de la sorte, *voyant* et *touchant* ces organes, recueille, au moyen d'un examen attentif, des signes qui, comme l'a dit Laënnec, rendent

What we call the Paris school came into being after the French revolution had united medicine and surgery in the medical schools. Bichat, one of the leaders of the new generation, had come to Paris as a pupil of the surgeon Desault. After Desault's death he edited the latter's works and gave courses in anatomy, physiology, and surgery. Only around 1797 did he turn to medicine [33] and to "medical anatomy," [34] as he characterized his general anatomy which offered a basis for a new general pathology. Corvisart, although doctor of medicine of Paris, had been stimulated to the study of medicine by an anatomical lecture of Antoine Petit. One of his main teachers and protectors was Desault, and under the latter's direction he is said to have given courses in physiology, obstetrics, and surgical operations before he definitely decided in favor of internal medicine.[35] Through his pupils and through the example of his clinical teaching, Desault emerges as the man from whom the Paris school derived perhaps more inspiration than from anyone else. The situation has been summed up by Wunderlich in these words:

> Indeed, the whole trend of recent French medicine comes from the surgical school. Desault has without doubt exercised the greatest influence as a paragon of exact observation and in relating surgery to its anatomical basis.[35a]

Soon the reputation of the school came to rest on the physicians Corvisart, Pinel, Laennec, Broussais, Andral, Louis, Chomel, and on the surgeons Larrey, Dupuytren, Richerand, Alibert, Roux—just to mention some of the best-known names. It is hardly possible to claim that the medical reform came first, the stimulus to surgery afterwards. And if we turn from France to other countries, the picture changes even more in favor of surgery. The leading medical figures in England between 1800 and 1830 were the surgeons Abernethy, William Lawrence, Sir Astley Cooper, Everard Home, Benjamin Brodie, Charles Bell. Even

le diagnostic de la plupart des maladies dont il s'agit, aussi sûr que celui de certaines maladies chirurgicales, telles que les fractures et les luxations entre autres."

[33] Maurice Genty, "Bichat et son temps," ch. 4, III, *La médecine internationale illustrée* (July 1934-September 1935).

[34] Xav. Bichat, *Traité d'anatomie descriptive*, t. 1, Paris, 1801, p. viii: "Je présume qu'on trouvera que mon Anatomie générale est une vraie anatomie médicale."

[35] Louis Héchmann, *Corvisart et la percussion*, Thèse de Paris, 1906, p. 25.

[35a] C. A. Wunderlich, *Geschichte der Medicin*, Stuttgart, 1859, p. 244. Ch. Daremberg, *Histoire des sciences médicales*, t. 2, Paris, 1810, p. 1295, praises Desault above all "parce qu'il a le premier constitué une École clinique pour les étudiants, à l'Hôtel-Dieu, et qu'il a suggéré à son élève et ami, Corvisart, l'idée d'une même institution pour la médecine, à la Charité."

several of the outstanding English physicians of this period had been under the surgeon's tutelage: Matthew Baillie was a nephew and disciple of the Hunters; his work on pathological anatomy was largely based on William Hunter's collection. Jenner had been a pupil of John Hunter, and only in 1792 with the acquisition of a medical degree from St. Andrew's had he given up the surgical side of his practice.[36] Richard Bright owed his taste for morbid anatomy to Astley Cooper under whom he had worked at Guy's Hospital in 1811.[37] In Germany, medicine was largely under the sway of the Romantic philosophy of nature, stimulating to certain branches of biology, but retarding on the whole to internal medicine. Yet surgery, even in these years, progressed in Germany. Gräfe revived plastic surgery, Strohmeier developed tenotomy and myotomy, and it was the surgeon Dieffenbach who agitated for the call of Schönlein to Berlin, thereby helping to introduce the new French methods of diagnosis in the Prussian capital.

A brief survey like the present leads easily to overemphasis and misunderstanding. It is, therefore, necessary to stress the limitations of the role of surgery and to define more precisely the aim of this presentation. Assuredly, the model of surgery was not the only determining factor in the reorientation of medicine. Quite apart from their connection with the healing art, anatomy and physiology had a scientific tradition of their own. Even among surgeons many were antagonistic to physiological research, as the example of John Hunter's adversaries proves.[38] Chemistry, which played an increasingly important part, stood closer to medicine than to surgery. Above all, even a localized pathology was in need of a general pathology, a desideratum for both medicine and surgery. It is, perhaps, significant that here decisive steps in a new direction were claimed simultaneously, about 1804, by the physician Laennec and the surgeon Dupuytren.[39] But when all this has been said, the following thesis can still be maintained.

[36] John Baron, *The life of Edward Jenner, M. D.*, vol. 1, London, 1838, p. 105.

[37] Article "Bright, Richard" in *Dictionary of national biography*, vol. 2, New York, 1908, p. 1242.

[38] I intend to discuss the connection between surgery and experimental physiology in another context.

[39] R. T. H. Laennec, "Note sur l'anatomie pathologique," *Journal de médecine, chirurgie, pharmacie*, etc., t. IX, an XIII, pp. 360-378, see especially p. 368, footnote. G. Dupuytren, "Observations sur la note relative aux altérations organiques, publiée par M. Laennec" etc., *ibid.*, pp. 441-446; also "Anatomie pathologique" in *Bulletin de l'école de médecine de Paris*, an 13, no. II. See also Léon Delhoume, *Dupuytren*, 3e édition, Paris, 1935, p. 45 ff.

Surgery, for many centuries, had relied on an objective anatomical diagnosis. In turning to a localized pathology, medicine adopted a point of view prevalent among surgeons. In part at least, the reorientation of medicine was due to an increasing approximation between medicine and surgery during the 18th century, with pathological anatomy and experimental physiology as a common ground cultivated by both disciplines. Because the reorientation of medicine took place within a relatively short period and led to dramatic results in diagnosis and nosology, it has impressed us more than the steady advance of surgery. And since surgery, in its practical possibilities, was still restricted until the advent of anesthesia and antisepsis, medicine has appeared as the progressive branch while surgery has seemed to lag behind. No doubt, surgery benefited greatly from the reform of medicine. But it was not in need of a diagnostic and pathological revolution (if we except bacteriology), and as to treatment, it still had the advantage. Medicine ran into the cul de sac of therapeutic nihilism, while surgery, with all its imperfections before 1846, could and did cure with some confidence.

THE FOUNDING OF THE NEW ORLEANS MARINE HOSPITAL

WILLIAM E. ROONEY

The New Orleans Marine Hospital is a unique government institution in that it was the first hospital authorized by Congress in a foreign port and was actually in operation before Louisiana became part of the United States. It was largely because of the interest of President Thomas Jefferson in the welfare of merchant seamen and river boatmen that hospital facilities were provided on the Mississippi River in 1803. The story of the founding of the hospital and the appointment of the first director make an interesting page in American history.

The position of the city of New Orleans made good hospital accommodations necessary almost from the beginning. The area of southern Louisiana where the city was founded was a swampy marshland that enhanced the spread of disease. The swamps made excellent breeding places for malaria and yellow fever mosquitos, and these diseases added to the burden of the early French settlers in keeping the port alive. Added to the naturally unhealthy site was the fact that the Mississippi was the main source of drinking water, and the stream carried the refuse of a continent. Also, the river periodically overflowed its banks because of the snow thaws to the north, and the inundated sections provided more breeding places for mosquitos, polluted any other drinking water in the area, and ruined whatever crops had been planted. These were the conditions, in addition to the unfamiliar climate, that settlers had to cope with.

The French founders of New Orleans attempted to solve the hospital problem early in the history of New Orleans. Within a few years of the city's founding in 1718 there was a small military hospital in operation, but its capacity was limited and soon had to be supplemented by using a warehouse.[1] This was the first of many hospitals established in the city since its settlement and growth.

New Orleans secured more hospital space in 1736 when one Jean Louis bequeathed a small sum of money to provide medical care for the poor of the colony. It is interesting to note that Louis spent his early years

[1] Samuel Wilson, "An Architectural History of the Royal Hospital and the Ursuline Convent of New Orleans," *Louisiana Historical Quarterly* (New Orleans, 1917-), XXIX (June, 1947), 555-56.

before the mast, so the interest of sea-faring men in adequate medical facilities for New Orleans could be said to date from this time. The institution he endowed survives today as the Charity Hospital of Louisiana, a great medical center of the United States.[2]

For many years New Orleans had been the chief port on the Mississippi. Barges and flatboats descended the Ohio River and continued down to the river port even before the American Revolution, but the conclusion of that struggle and the great increase in western migration caused the traffic to increase. New Orleans was the ultimate destination of many of the river craft of the middle west, and the unhealthy conditions prevailing took their toll of the rivermen. The hard, toughening life of the frontier was not enough to immunize a man completely from sickness, and the lack of hospital space caused the number of deaths among these men to mount every year.

This lack of hospital space had undoubtedly been noticed in New Orleans for many years, but nothing was done. In 1801, however, an American citizen residing in the Spanish port wrote a letter to call the attention of the Secretary of State to the needs of American sailors who descended the Mississippi River. Evan Jones, the writer of the letter, told James Madison of the large number of Americans who died in New Orleans each year. The chief cause of this, he wrote, was that there were insufficient accomodations in the Charity Hospital, which was willing to care for these men but couldn't because its building was too small. No boarding house would admit the sick, and the result was that they were forced to remain in their boats or live in miserable cabins ashore during their sickness. Any humane countryman who attempted to help them endangered his own life and subjected himself to a great expense.[3]

Jones suggested a solution in his letter. There were over two hundred ships and twice as many barges coming to New Orleans annually with a total crew of several thousand men. If each man was taxed a nominal sum every month, and each ship be charged a certain amount, enough money would be collected annually to pay for a hospital in New Orleans to care

[2] Stella O'Connor, "The Charity Hospital at New Orleans: An Administrative and Financial History, 1736-1941," *ibid.*, XXXI (January, 1948), 9-10.

[3] Evan Jones to the Secretary of State [James Madison], August 10, 1801, in John B. Hamilton, "United States Marine Hospital Service," *Appleton's Annual Cyclopedia and Register of Important Events*, New Series (New York, 1876-1895), IV (1879), 781; *American State Papers* (Washington, 1832-1861), Ser. IV, *Commerce and Navigation*, I, 493.

for these men when sick. "Will not this be an object, sir, worthy of the attention of the Government of the United States?" he wrote.[4]

Madison passed the letter along to Jefferson and the President's humanitarian instincts were touched. He felt the needs of the seamen were worthy of the administration's attention and said so in a message to Congress.[5] Jefferson wrote that a large section of the United States communicated with New Orleans every year and that this area was rapidly increasing its population. The number of American citizens visiting the port annually was probably greater than Jones' estimate and consequently the number of men requiring medical assistance was greater also. The President recommended, therefore, that the Congress examine the expediency of making provisions for a hospital to be operated under the direction of the United States Government.[6]

The message was sent to both houses of Congress, but since acts of revenue must originate in the House of Representatives, that body ordered the message received from the President and its accompanying documents referred to the Committee of Commerce and Manufactures.[7]

This was not the first time that Congress had been called on to provide hospital care for sick and disabled seamen. The first session of the first Congress had considered the problem but had taken no steps to provide any establishments for seamen. The idea was periodically revived, but it was not until July 16, 1798, that a law providing for some measure of care for sick seamen was actually passed.[8] The Act of 1798, sponsored by Edward Livingston of New York, taxed each seaman twenty cents a month, payable to collectors of the ports of the United States, and stated that this money be constituted a fund to provide for the relief of these men when sick. In addition, Congress authorized the President to name "directors of marine hospitals" to handle the facilities to be furnished in each port for the sick and disabled seamen in the seagoing or coasting trade.[9] The following year the act was amended to allow the members of the navy and marines to share in the benefits of the hospital tax, and

[4] *American State Papers*, Ser. IV, *Commerce and Navigation*, I, 493.

[5] Thomas Jefferson to the United State Senate and the House of Representatives, February 24, 1802, *ibid.*, 490.

[6] *Ibid.*

[7] *Annals of Congress*, 7 Cong., 1 Sess., 721.

[8] Henry W. Farnam, *Chapters in the History of Social Legislation in the United States to 1860* (Washington, 1938), 232-33.

[9] *The Public Statutes at Large of the United States of America* (Boston, 1845-1873), I, (1845), 605-606.

provisions were made so that funds collected could be spent in states other than the one in which collections were made.[10] The United States thus provided, early in its history, a system of health insurance for a portion of its citizenry engaged in hazardous employment.

While the House Committee of Commerce and Manufactures was deliberating on what steps should be taken to afford relief to New Orleans, Governor William Charles Cole Claiborne of the Mississippi Territory learned of the President's message and expressed his warm approval in a letter to Secretary of State James Madison.[11] The establishment of a marine hospital in New Orleans was a necessity for two reasons. First, Claiborne felt that "the principals [*sic*] of Humanity" demanded that provisions be made to care for sick Americans. Traveling the Mississippi, especially in the unhealthy seasons, was a hazardous undertaking, and lives were lost because of a lack of simple attention and lodging when sickness struck. The bare necessities furnished by a hospital would mean the difference between life and death to these men.[12] To the humane considerations Claiborne added the economic. The trip down the river was not a pleasant one, and hands were not likely to embark on a voyage that could take their lives. Boatowners were often at their wits end to procure men for a contemplated voyage down the river, and all too often were forced to drop their plans after a great deal of time and expense because the necessary hands were unavailable.[13] The Governor felt that a hospital situated in New Orleans would do much to encourage rivermen and merchants to make more voyages to that port.

While Claiborne was indicating his support of a marine hospital for New Orleans, the House Committee of Commerce and Manufactures was considering the President's request. On April 6, 1802, it reported a bill to amend the Act of 1798, but after reading it twice the House postponed final action until the measure could be considered in Committee of the Whole.[14] Six days later the House went into session as a Committee of the Whole on the bill to relieve sick and disabled seamen. The chief opposition centered about a section that would place all money

[10] *Ibid.*, 729.

[11] W. C. C. Claiborne to James Madison, April 24, 1802, Dunbar Rowland (ed.), *The Mississippi Territorial Archives, 1798-1803* (Nashville, 1905), 421-22; Dunbar Rowland (ed.), *Official Letter Books of W. C. C. Claiborne, 1801-1816*, 6 vols. (Jackson, Miss., 1917), I, 89-90.

[12] Rowland (ed.), *Official Letter Books of W. C. C. Claiborne, 1801-1816*, I, 89-90.

[13] *Ibid.*

[14] *Annals of Congress*, 7 Cong., 1 Sess., 1142.

collected in a general fund to be applied as the President saw fit rather than retain the old system of committing funds to the ports, or adjoining ports, in which they were collected. This proposed amendment was narrowly defeated and the House allowed the measure to lie over another day.[15] On April 13, 1802, the House took up final debate on the bill.[16] As frequently occurs to bills benefitting certain sections of the country, amendments and riders were offered by various congressmen. This bill was no exception. When the House began consideration of it Representative Phanuel Bishop of Massachusetts immediately proposed an addition calling for a $20,000 allotment to build a hospital in his native state. Congressman Samuel Smith of Maryland, who was sponsoring the bill, agreed to Massachusetts' right to a hospital, but asked that the sum be reduced to $15,000. This was agreeable to Bishop and the House approved the amendment. A similar proposal by John Milledge to obtain $5,000 for a hospital in Savannah, Georgia, was not acted on.[17]

Final passage of the act took place in the House on April 14, 1802, and the measure was sent to the Senate. In spite of Presidential backing and no particular opposition on preliminary votes, it is rather surprising to note that the yeas numbered only three more votes than the nays on final approval.[18]

The Senate gave the bill two readings and then referred it to a special committee on April 15.[19] For the next fifteen days the bill rested in committee, and when it reached the Senate floor was quickly approved with two amendments.[20] The nature of the amendments was not stated. The House approved the Senate's changes without objection.[21] The Senate voted final passage 15 votes to 5, and the bill became law on May 3, 1802, the last day of the session.[22]

The act inaugurating a marine hospital for New Orleans was entitled " An Act to amend an act intituled [*sic*] ' An Act for the relief of sick and disabled seamen,' and for other purposes." [23] The major portion of it was devoted to the hospital to be established in New Orleans, but some parts were devoted to the entire marine hospital service. In addition to the amendments creating a general fund of the money collected and the appropriation for a hospital in Massachusetts, the act allowed directors of marine hospitals to keep a commission of one per cent on the funds they

[15] *Ibid.*, 1163. [16] *Ibid.*, 1164. [17] *Ibid.* [18] *Ibid.*, 1174. [19] *Ibid.*, 263. [20] *Ibid.*, 302. [21] *Ibid.*, 1294. [22] *Ibid.*, 303.
[23] *Public Statutes at Large of the United States*, II (1845), 192-93.

expended.[24] Foreign sailors who became ill in United States ports were provided for in the bill. Directors of marine hospitals were authorized to admit foreign sailors upon application of the man's captain if it would not inconvenience the hospitals. To pay for the treatment the foreigners would be required to pay the rate of twenty-five cents a day to the collector of the port in which they received treatment.[25] When one considers the large amount of foreign shipping that touched American ports such as New Orleans this was a generous provision on the part of the United States.

New Orleans was specifically referred to in a large part of the act. The President was authorized to spend up to $3,000 to furnish the city with a hospital, a director, and the necessary supplies, provided that "the same can be done with the assent of the government having jurisdiction over the port."[26] To meet the costs of the New Orleans hospital the law provided that each craft going down the Mississippi to New Orleans be required to pay twenty cents per man for each month the man was employed on the craft. Fort Adams, south of Natchez in the Mississippi Territory, was to be the collection point for boats on the Mississippi. The only stipulation was that the seamen taxed be United States citizens and, as such, subject to the tax. Except for the fact that New Orleans was a foreign port, the maintenance and direction of the marine hospital there would be the same as in a port of the United States.[27]

Now that authorization was secured for a New Orleans hospital, President Jefferson was faced with two problems to get it established. One was to secure Spanish permission to open the hospital, and the other was to find a doctor willing to serve as its director.

Neither of these considerations seemed to bother the President greatly. Even while Congress was in the process of establishing the hospital, he was corresponding with his intimate friend, Dr. Caspar Wistar of Philadelphia, to learn of a prospective director. Jefferson asked for a confidential report on the abilities of Dr. William Barnwell of that city.[28] The President expressed the opinion that "a score" of young doctors would seek the position if the legislature established the hospital, which was "likely."[29] Barnwell had written a book that gave Jefferson some

[24] *Ibid.* [25] *Ibid.* [26] *Ibid.* [27] *Ibid.*

[28] Jefferson to Caspar Wistar, March 22, 1802, Thomas Jefferson Papers (Division of Manuscripts, Library of Congress, Washington, D. C.). All references to this collection will be from microfilm copies in the Howard-Tilton Library, Tulane University.

[29] *Ibid.*

idea of his abilities, but the President preferred the estimate of a professional colleague. The position was to be considered one of trust, and a doctor with a reputable practice was wanted rather than an inexperienced one.[30]

Wistar's reply to Jefferson was evidently favorable to Dr. Barnwell. In a subsequent letter Jefferson thanked his friend but explained that the job had been given to another doctor despite the fact that Barnwell had been slated for the position on the strength of Wistar's letter.[31] The appointee was Dr. William Bache, grandson of Benjamin Franklin and Wistar's brother-in-law. As he had intended to move to the Mississippi Territory, the President offered him the directorship of the hospital.[32] It is highly unlikely that Wistar solicited the job for Bache. This can be seen from the text of Jefferson's letter, and from the fact that Bache had asked for government employment late in 1801 [33] which had been the subject of some correspondence between Jefferson and Albert Gallatin.[34] In any case, Bache accepted the position and began his preparations to leave for New Orleans.[35]

These preparations indicate that Jefferson was not too greatly worried about securing Spanish agreement to open a hospital in New Orleans. He was impatient to get the hospital started, and when he learned that Daniel Clark, the American consul in New Orleans, was in New York, he requested that Gallatin immediately communicate with him so that Bache could be advised on the situation in New Orleans. "We have been unfortunate in the delays of this institution," he wrote Gallatin.[36]

Clark meanwhile had answered an earlier Gallatin request for information on New Orleans. He expressed his pleasure at the news about the hospital but stated the appropriation was not large enough to relieve the distressing conditions in the seaport. Most important, however, was his statement that "The Spanish Government will, without difficulty permit the building of an [*sic*] Hospital." [37] Here was a statement by a man lately arrived from New Orleans on the subject of the required

[30] *Ibid.*

[31] Jefferson to Wistar, July 14, 1802, *ibid.*

[32] *Ibid.*

[33] William Bache to Albert Gallatin, September 11, 1801, *ibid.*

[34] Gallatin to Jefferson, September 21, 1801, Henry Adams (ed.), *The Writings of Albert Gallatin*, 3 vols. (Philadelphia, 1879), I, 56; Jefferson to Gallatin, October 3, 1801, *ibid.*

[35] Bache to Jefferson, June 19, July 7, 1802, Jefferson Papers.

[36] Jefferson to Gallatin, August 14, 1802, Adams (ed.), *Writings of Albert Gallatin*, I, 85.

[37] Daniel Clark to Gallatin, August 15, 1802, Jefferson Papers.

permission. Presumably he had broached the subject to the proper authorities before leaving New Orleans and had secured their permission to open the hospital. Jefferson and Gallatin proceeded on Clark's word, but things were not to be as easy as anticipated.[38]

Much practical advice was included in Clark's letter to Gallatin, all of it to be passed on to Bache. It would be advisable, he thought, to order medical supplies from the United States through a reliable merchant or druggist. This would insure more rapid delivery than shipping the medicaments from the United States to a public depository in New Orleans, where service was often delayed. The doctor was advised to bring with him the necessary surgical instruments for amputation and setting broken limbs, and anything else that might not be procurable in New Orleans. Various staples in the way of food and drink could be cheaply obtained at his new location.[39]

Clark, throughout the letter, continually returned to the inadequacy of the funds allotted to New Orleans. To keep costs down he suggested that the doctor hire a building rather than erect one. Also, after predicting that Bache would see how inadequate the appropriation was upon arriving in New Orleans, Clark advised that the consul and the doctor consult frequently to conserve the money. He wanted a clear statement on whether Bache's salary, and supplies of medicines were chargeable to the appropriation. Finally, possibly despairing over the success of the undertaking, he recommended that those on the scene be authorized to spend the entire appropriation during the unhealthy months, and charge for medical care given the rest of the year.[40] Inadequate finances were to plague the New Orleans Marine Hospital throughout its ante-bellum history.

While Dr. Bache was en route to his post a letter arrived in Washington from a Charleston jurist that summed up all the arguments in favor of a hospital in New Orleans. The writer, lately returned from that city, reiterated much of what Jones had said, but emphasized the need of an American doctor-in-charge rather than a Spaniard. Anti-Spanish feeling was such among American seamen that they seldom consulted Spanish doctors, and received little benefit if they did.[41]

[38] Gallatin to Jefferson, August 19, 1802, *ibid.*

[39] Clark to Gallatin, August 15, 1802, *ibid.*

[40] *Ibid.*

[41] E. M. Bay to the Secretary of State [Madison], November 4, 1802, *American State Papers*, Ser. IV, *Commerce and Navigation*, I, 493-94. This was undoubtedly Judge Elihu Hall Bay of Charleston who had recently returned from New Orleans. Clarence E.

Armed with this information and with Clark's assurance that the Spaniards would permit him to practice, Bache must have arrived in New Orleans with the expectation of plunging at once into his duties. The needs of the seamen had caused concern to both Jefferson and Gallatin, who had pushed the establishment of the hospital, and Bache probably saw no reason to anticipate trouble. He was mistaken.

Dr. Bache arrived in New Orleans on March 27, 1803, and immediately presented himself to the American vice-consul.[42] This official, William Hulings, who had been advised of Bache's appointment, had some disturbing news for him. Permission to establish a hospital that Clark had spoken of had not been forthcoming, and Hulings had no idea upon what grounds Clark had based his letter stating that such permission had been granted. Bache advised Jefferson that he proposed to take up the matter with Governor Manuel de Salcedo, but was not hopeful of getting a final decision on the matter until France and Spain had completed cession arrangements. The doctor included his observations on the situation in Louisiana in the letter to Jefferson, and these must have been helpful as one of the first on-the-spot appraisals of the Louisiana transfer to reach the President.[43]

Possibly the transfer of Louisiana to France stopped Bache temporarily, but by early May he was busy administering to the sick seamen who reported to him.[44] There is no evidence that he secured a special building to handle the patients. In subsequent statements it is indicated that the Charity Hospital was paid to furnish space to sailors and boatmen.

The first three weeks the Marine Hospital Service was in operation in New Orleans it administered to eighteen seamen who reported for treatment. Dr. Bache reported that there was only one death among the first group, and the hospital was off to a successful start.[45]

Thus it was that the oldest agency of the federal government still in existence in New Orleans had its beginning in the months before the Louisiana Purchase. It would be many years before a specially designed building was constructed in New Orleans, and the institution was to survive wars and epidemics to serve humanity until the present time. Small as it was, a beginning had been made, and the government of the United States had accepted the responsibility of providing medical care for its citizens in an unhealthy foreign port.

Carter (comp. and ed.), *The Territorial Papers of the United States*, IX, *The Territory of Orleans 1803-1812* (Washington, 1940), 74-75.

[43] Bache to Jefferson, March 29, 1803, Jefferson Papers.

[45] *Ibid.* [44] Bache to Jefferson, June 1, 1803, *ibid.* [45] *Ibid.*

THE THREE McLANE DOCTORS OF MORGANTOWN

SIMON B. CHANDLER

The three McLanes—father, son, and grandson—practiced medicine in Morgantown, West Virginia, for a total of almost one hundred years. The founder of the family was Charles McLane, who emigrated to America with his parents and a brother in 1805.

The ancestral home of the family was the Isle of Mull, Scotland, and here the name was MacLean. Alan McLane (father of Doctor McLane I) first emigrated to America sometime about 1760. The country was new and so unsettled that he returned to locate in Tyrone County, Ireland. Here he married in 1785, and before 1800 had two sons. By this time, he was thinking of coming back to America. The return journey was undertaken in 1804. The older son, William, was a tall, slim, young man of very fair complexion. It was easy for his mother to part his long, black hair in the middle and disguise him as a sick "lady" in her berth so that the British sailors who boarded the vessel at sea would not "capture" him. The other son, Charles, was rugged of body and soul, but now only 14 and so not taken for the British naval duty. Charles lived the strenuous life of the pioneer doctor for almost half a century. His great-granddaughter says he had two abiding passions in life: medicine and religion.

The family settled near Lancaster, Pennsylvania, where Charles and possibly William began to "read" medicine under a Dr. Luther. Charles attended lectures at the University of Pennsylvania where he received a degree. After a short practice in Greensburg and Connellsville, Pennsylvania, he moved to Morgantown in 1823. At that time, Morgantown was a frontier place of a few hundred people. One aged doctor was all he found to serve the medical needs of the community. Dr. McLane was now 33 years old, married and had two children. After he moved to Morgantown, six other children were born to him—three alone survived the 25th year.

A son, Joseph Alan, "read" medicine under his father and was graduated from Jefferson Medical College in 1841. This Joseph Alan had a son Charles Henry who also "read" medicine with his father and his grandfather. As a small boy he was tutored by Stonewall Jackson. Later when he was attending the Virginia Military Institute he again came

under the influence of Stonewall Jackson. The association with Jackson, however, did not prevent the young doctor McLane from enlisting in the Union Army Medical Corps. After four years of service (wounded and taken prisoner at Gettysburg) he enrolled in Starling Medical College (now Ohio State University) from which he received a degree in 1866. He was the only one of the McLane doctors who resided away from Morgantown. After graduating from the medical school at Columbus he

Fig. 1

The adult in the group is Dr. Joseph Alan McLane 1820-1894. The boy on Dr. McLane's right is Dr. Charles H. McLane; the boy on his left is Dr. William McLane.

settled at Steubenville, Ohio. He lived in the McLane home on Kirk and High Streets in Morgantown for the last 28 years of his life.

In 1823 Morgantown was a small frontier village. The size of its population is not known but in 1845 it could count only 150 dwellings, a few stores, two churches and one academy. A history of the county lists the following medicinal agents: 49 herbs, 8 trees, 4 vines and one red suphur spring. Intermittent fever (malaria) was common along the Ohio River, but not so prevalent in the interior district. When present

in Morgantown it was of distant origin, say the accounts of the time. It was treated by dogwood, cherry, and poplar bark digested in whiskey, or by a similar concoction of boneset. Dysentery took a heavy toll. "Oak ooze" was administered internally by some, but others advised a decoction made from May apple root, walnut bark, slippery elm tea, plus hot fomentations to the abdomen. The diagnosis of "lung fever" was applied to most conditions in the chest and usually treated by steaming the patient with vapors of whiskey. Virginia snake-root was used for all coughs.

Measles and scarlet fever broke out in epidemics on an average of every five years. Typhoid was endemic in all communities. Diphtheria was known as putrid sore throat. Many adults were ready every spring to have their blood purified by one or more bleedings. It was a common practice to purge by the use of large doses of senna and manna or a decoction of rhubarb and molasses. These drugs were used also to stimulate the kidneys and to keep the bile flowing freely. These are a few of the medical problems Doctor McLane encountered in his new location.

Travel over mountain paths and swollen rivers was extremely hazardous. Questions of diagnosis were also quite baffling. In 1826, Dr. McLane received this letter from the well-known Dr. Philip Syng Physick of Philadelphia:

Philad. 24th April, 1826

Dear Sir:

Your letter, without date, describing the state of Wm. Evans eyes came to my hands this day—I am sorry to inform you that without an opportunity of examining them I cannot form a satisfactory opinion of the nature of the blindness—If the pain in the forehead continues, I would advise a low diet—frequent purging—the application of leeches over the painful part—blisters to the back of the neck and issues on the forehead or on the temples near the margin of the orbit—I am gratified by your polite letter and I remain very respectfully

Your faithful pro P. S. Physick

Dr. McLane's son, Joseph Alan, "read" medicine with his father and at the age of 17 years enrolled at Jefferson Medical School. This letter to his father shows a wide-awake young man.

Philadelphia Dec. 6th 1837

Dear Parents:

. . . You inform me in your letter that the small pox is near Morgantown.

Fig. 2

Dr. Charles Henry McLane, Sept. 2, 1843-April 18, 1922.

He graduated from Sterling Medical College, Columbus, Ohio, February 26, 1866. He served in the Union Army Medical Corps, 1861-1865.

On this account (as soon as I read the letter) I ran up to Dr. McClintock's on 5th St. to get the vaccine matter. He had none on hands but had a few days before been vaccinating. So of course had to wait until last evening, when he divided a scab with me. I send you this matter under the transparent wafers on the 1st page. In this situation the letter will be liable to pass as single. . . . If Emily is not too busily employed this winter, I wish that she would take the trouble of noting down the temperature of the atmosphere (out from the house) at about 9 o'clock each morning and about 4 o'clock in the afternoon each day from this till the last of February. I will do the same here & see whether there is much difference between the temperature of the two places. . . . Since I left home I have seen many great men & many as weakminded as any of our backwood's men. I met Thos. Benton as I passed through Cumberland and at a tavern on this side of the mountain I had the honor of conversing alone with Henry Clay. He is a polished gentlemen but not at all proud.

Yours truly etc
Jos. A.

Several hints about the life of the country doctor are contained in a letter Dr. McLane wrote his son Joseph Alan.

Morgantown, Jan. 3rd, 1838.

Dear Joseph,

. . . Since I wrote last, I purchased Mr. Robb's fine traveler at $100. . . . I am in hopes that he will be quite a good horse by spring. Within a few days, I have been in Pittsg. and since my return, I attended a case above the Horse-Shoe, 60 miles up Cheat. I got back on Monday the 1st—on the 2nd I attended a case in Greene County (Pennsylvania) and to-day I attended one beyond Cheat. . . .

The weather here has been fine in the extreme. At this moment, 7 h. 25 m. p. m., the thermometer stands at 49-½°.

Mrs. McLane added the following to the letter to Joseph: "We vaccinated Virginia (age about 18 months) on the same evening that we received the letter 4 days from Philadelphia. It took very well. Made her feverish a few days. She is perfectly well at this time with cheeks as red as roses. . . . The thermometer stands at 66 between 3 and 4 p. m."

Dr. McLane was now 48. To visit Pittsburgh and the Horse-Shoe meant riding approximately 280 miles.

The following incident occurred about 10 years after the one related above. Dr. McLane made a trip to Fairmont, a distance of 25 miles, one afternoon in February. On the return trip, rains had swollen the Monon-

gahela River. Dr. McLane did not notice the change in the river. His horse sank so deep that the rider was pulled off. But he held on to the bridle, and the horse pulled him to the opposite shore. A bridge had been advocated for a long time. This incident focussed public opinion which led to the construction of the bridge. A suspension type structure was completed in 1852. Dr. McLane was now about 58.

Despite all these vicissitudes, Dr. McLane had time for many other things. He wrote to a medical student by the name of Lazzell (then in Philadelphia) and received the following reply: "You will no doubt be surprised to know that there is from 14 to 1500 students in the different colleges here so that Physic is pretty well represented. . . . I was the 107th Matriculant in Our Institution and there has come in perhaps some 15 or 20 since, not so many as the other Institutions as you see, the Jefferson having 500 and odd but after having visited the others and seen their 'Modus Operandi' I would take the Philada College for Choice."

As an example of kindness and child-like simplicity it is related that on one occasion while Dr. McLane was on one of his professional trips he noticed a robust man, apparently in great misery, sitting near the edge of a stream. In his kind way the doctor stopped and inquired the cause of his apparent suffering, and was told that it was toothache. By request the doctor alighted and was proceeding to examine the tooth when the michievous rascal, who was only feigning his suffering, closed his huge jaws upon the doctor's fingers and held on like a bulldog. He thought it a smart joke to thus punish the doctor for his kindness, but he mistook his man. The "Adam" was aroused in the old doctor, and he leveled a left-handed blow at the butt of his ear that relaxed the jaws of the" smart alec" in a hurry, and sent him end over end into the creek. This anecdote furnishes a sample of the sort of people the early practitioner came in contact with.

Dr. McLane used his ability to help train other young men for medicine. He gave help to his son Joseph Alan, his grandson, Charles, Jr. and also to Drs. Thomas Laidley (Penn.), C. Billingsly (Missouri), Isaac Scott (Parkersburg) and Hugh W. Brock of Morgantown.

Probably the most eminent of all these was Doctor Brock, who in 1872 was appointed Professor of Anatomy, Surgery, and Hygiene at West Virginia University. This department later became West Virginia University Medical School.

Dr. McLane was also an ordained minister for two decades. He and

two other physicians ran races to see which one could perform the most marriage ceremonies. Dr. McLane held the lead for many years but finally gave up this part of his activities entirely after 1850. This was the time he formed a partnership with his son, Joseph Alan, and with the Doctors Scott and Brock. This was for the practice of medicine and surgery. The limits of the group's practice was Uniontown, in Pennsylvania, Kingwood, Grafton, and Clarksburg in West Virginia. These towns are from 25 to 50 miles away from Morgantown.

Dr. McLane also formed a partnership with Dr. Scott for the manufacture of McLane's Improved Liver Pills and Scott's White Circassian Liniment. The name of the firm was C. McLane and I. Scott. Sales increased rapidly. By 1855 more than a dozen people were required to make and fill orders from every state and many foreign lands. Dr. Callihan, Emeritus Professor of History at West Virginia University, says, "In my home town of Bedford, Indiana, McLane's Liver Pills were immensely popular."

The ingredients were mixed in a large metal mortar. It is still in the possession of a resident of Morgantown.

Dr. McLane I was probably the greater physician and certainly the most successful in business. In land and property he was considered a wealthy man. He sold the liver pill formula to a chemist for a goodly sum, kept half for himself and gave the rest to the church.

In 1840 he erected a brick house at Kirk and High Streets in Morgantown. This was his residence until he died in 1878. The son Joseph Alan made it his home until he died in 1894. The same house was the residence of Doctor Charles, Jr. (son of Joseph Alan and grandson of Doctor Charles I) until his death in 1922. At the present time the building is the home and office of a Morgantown physician.

The three McLanes seemed to be quite similar in their love of life and people. They were equally fond of anecdotes and good stories, each one always having an inexhaustible supply for every occasion. None of them ever refused to make a call no matter how great the distance or the kind of weather.

A prominent lawyer now residing in Morgantown says of Dr. McLane III: "He brought me into this world. While he was not the eminent physician his grandfather was, he did possess a powerful personality. When he entered the sick room something happened—one could not be sick in his presence."

One of the daughters of Dr. McLane III made this remark about her father: "He lived fully every day. His view was that when a death

came to a family, there should be no grief. All those that remain should fill up the ranks as nearly as possible and go ahead the same as before."

The McLane Doctors enjoyed fun, active medical careers, and long useful lives. Each one is remembered for good faithful service.

I acknowledge the help given by Mrs. Virginia McIntosh, daughter of Dr. McLane III, who so very generously loaned the old letters to me. I was also aided and encouraged by a niece of Dr. McLane III, Mrs. Virginia McWhorter.

THE FIRST WOMAN DENTIST
LUCY HOBBS TAYLOR, D. D. S. (1833-1910)*

RALPH W. EDWARDS

The history of most of the major professions reveals that they have been dominated by man and when woman sought to invade those sacred precincts of masculine activity great consternation usually arose. Precedent and custom decreed that woman had no place in the world other than in the home and to aspire to a professional career was unthinkable. The story of Elizabeth Stone Blackwell and her efforts to obtain a Doctor of Medicine degree is a tale of determination on the part of a woman to remove the barriers to her sex for the study of medicine. After having been refused admittance to medical schools in Philadelphia and New York, she finally was admitted to Geneva Medical College (1835-1872) where in 1849 she received the Doctor of Medicine degree, the first woman in the United States to receive that honor.[1]

In dentistry a similar incident occurred as women were barred because of their sex from admittance to schools of dental education. Again, a fierce determination on the part of a woman to achieve her objective was successful, and to Lucy Hobbs Taylor belongs the honor of being the individual who conquered the obstacles that prevented women from entering the study of dentistry.

Doctor Taylor was born Lucy Beaman Hobbs on March 14, 1833, in Ellenburg, Clinton County, New York.[2] It is recorded that she lost her mother at an early age, and when she became sixteen she embarked on a teaching career that lasted ten years. While teaching in Brooklyn, Jackson County, Michigan, she studied medicine for a short time with a physician, which aroused in her a desire to enter medical school. In 1859 at the age of twenty-six, she went to Cincinnati with the avowed purpose of studying medicine at the Eclectic Medical College. In spite of the fact that a decade earlier the first woman had received a Doctor of Medicine degree, the old prejudice against women in medicine still persisted; and she was refused admission to the medical school. She was advised by the presi-

* From the University of Kansas Medical Center, Kansas City 3, Kansas.

[1] Francis R. Packard. *History of Medicine in the United States.* New York: Paul B. Hoeber, 1931, pp. 741, 1222.

[2] *Dental Cosmos*, 52: 1315, (November) 1910.

dent of the medical college that she might find a more satisfactory career in the profession of dentistry.[3]

After some profound reflection on this suggestion, she decided to become a dentist. Application to various dentists in Cincinnati for a preceptorship resulted in disappointment and she was advised that "her place was at home taking care of the house." Most dentists were afraid to accept her as a student because "their characters would be ruined if it was known that they had a lady student."[4] As a temporary expedient Doctor Jonathan Taft, the dean (1858-1876) of the Ohio College of Dental Surgery, allowed her to remain in his office and study for a period of three months while she continued her search for a preceptor. At last she was successful. Doctor Samuel Wardle, who had graduated in 1859 at the Ohio College of Dental Surgery,[5] allowed her to enter his office on the same basis as other dental students; and to support herself she worked nights at sewing. She continued in this apprenticeship with Doctor Wardle, gaining in skill and knowledge, and never lessening in her determination to enter a dental school.

By that time (1861) there were three dental colleges in the United States, none of them a part of a university or a medical school. The Baltimore College of Dental Surgery (1840), Baltimore; the Ohio College of Dental Surgery (1845), Cincinnati; and the Pennsylvania College of Dental Surgery (1856), Philadelphia, were the schools of dental education then in existence.[6] From among these three schools her choice had to be made for a dental education and it is not surprising that she sought entry to the Ohio College of Dental Surgery. In March, 1861, she made application to the Ohio College of Dental Surgery,[7] at that time at 29 College Street, Cincinnati.[8]

[3] Edward Bumgardner. America's First Woman Dentist. *Oral Hygiene*, 33: 634-635, 641, (May) 1943. These data on Doctor Taylor were verified and additional information obtained in personal interviews with Doctor Bumgardner on May 4, May 11, and June 8, 1950, at his home in Lawrence, Kansas. Doctor Bumgardner came to Lawrence in the fall of 1893 to practice dentistry after receiving the D.D.S. (1891) and the M.D. (1893) degrees from the State University of Iowa. Shortly after his arrival in Lawrence he became acquainted with Doctor Taylor and a personal and professional friendship developed that continued until her death.

[4] Lucy Hobbs Taylor. The Early Women in Dentistry. Manuscript (No. 33352) in the Archives of the Kansas State Historical Society, Topeka, Kansas.

[5] Van B. Dalton. *The Genesis of Dental Education in the United States*. Cincinnati, 1946, p. 174.

[6] William J. Gies. *Dental Education in the United States and Canada*. New York: Carnegie Foundation for the Advancement of Teaching, 1926, p. 42.

[7] See footnote 4.

[8] Dalton, *op. cit.*, p. 204.

Again, the story was the same; women were not acceptable for the study of dentistry. In her dilemma she turned to her benefactor, Doctor Wardle; and he advised her to start practice without the advantages of a dental degree. On March 14, 1861, on her twenty-eighth birthday, she began the practice of dentistry in a small office on Fourth Street in Cincinnati. Times were perilous. The next month began the Civil War, with the entire country in conflict. Discouraged, she closed her office and went to Bellevue, Jackson County, Iowa, where she practiced for a year and managed to save $100 above expenses. Seeking more fruitful fields, she moved in 1862 to McGregor, Clayton County, Iowa, where she was more successful and became well established, making a clear profit of $3,000 the first year.[9]

For three years she practiced in McGregor, her reputation growing steadily among Iowa dentists. Doctor Luman Church Ingersoll of Keokuk, Iowa, who later became the first dean (1882-1888) of the State University of Iowa College of Dentistry,[10] was president of the Iowa State Dental Society in 1865. Through him an invitation was extended to her to attend their meeting at Dubuque, Iowa, on July 19 and 20, 1865. It was at this meeting that Miss Hobbs was elected to membership in the Iowa State Dental Society.[11]

During the course of this meeting Doctor Ingersoll offered the following resolution in support of the position of the Iowa State Dental Society in accepting a woman dentist to membership:

> Whereas, The Iowa State Dental Society has, without a precedent, elected to membership a lady practitioner of dentistry, and
>
> Whereas, It is due to her to know that the unanimous vote by which she was elected was not simply a formal vote, and
>
> Whereas, It is due to the profession at large, that we make a formal declaration concerning the position we have assumed in our action, therefore
>
> Resolved, That we most cordially welcome Miss Lucy B. Hobbs, of McGregor, to our number, and to our professional pursuits, trials, aims and successes.
>
> Resolved, That the profession of dentistry, involving, as it does, the vital interest of humanity, in the relief of human suffering, and the perpetuation of the comforts and enjoyments of life in civilized and refined society, has nothing in its pursuits

[9] See footnote 3.

[10] Amelia Rose Weidenbach. History of the University of Iowa, the College of Dentistry. Master of Arts Thesis (1944), p. 120, State University of Iowa, Iowa City, Iowa.

[11] Proceedings of the Iowa State Dental Society, Dubuque, Iowa, July 19 and 20, 1865. *Dental Register*, 19:358, (September) 1865.

foreign to the instincts of women, and, on the other hand, presents in almost every applicant for operations, a subject requiring a kind and benevolent consideration of the most refined and womanly nature.[12]

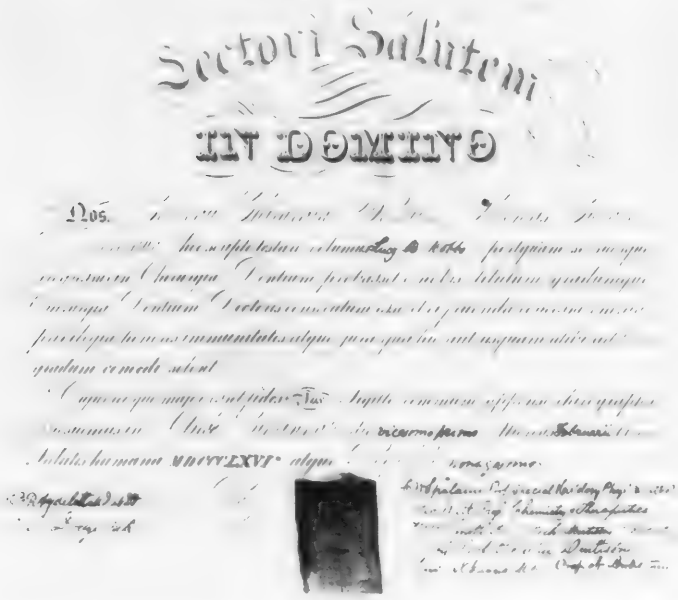

Fig. 1

The diploma received by Lucy B. Hobbs from the Ohio College of Dental Surgery on February 21, 1866. The diploma now is in the Archives of the Kansas State Historical Society at Topeka, Kansas.

In gratitude, Miss Hobbs responded:

In a very brief and very neat speech [Miss Hobbs] thanked the Society for all the kindness manifested towards her. She deemed the reception she had met with among them an ample recompense for all the rebuffs and discouragements she had received during the past four years, while fighting her way into and in the profession, and expressed her determination to make her mark in the profession, so that they would never regret the step they had taken.[13]

[12] *Ibid.*, pp. 431-432 (October).

Doctor Jonathan Taft, who was a guest at the meeting when Miss Hobbs was elected to membership, was urged to use his influence to have Miss Hobbs admitted to his school; and, finally, she was accepted and admitted to the Ohio College of Dental Surgery in early November, 1865. Because of her preceptorship and years of practice she was required to attend but one session and received the degree of Doctor of Dental Surgery on February 21, 1866,[13] the first woman in the world to receive that distinction (Fig. 1).

Following her graduation in dentistry, Doctor Lucy B. Hobbs started practice in Chicago and returned to Iowa in July, 1866, to present a paper before the Iowa State Dental Society.[14] (The paper was an essay on the use of mallet force, instead of hand pressure force, on instruments in inserting gold foil restorations in tooth cavities.)

Romance entered the life of Doctor Hobbs; and on April 24, 1867, she married James M. Taylor,[15] a veteran of the Union Army of the Civil War.[16] Her career in Chicago is briefly summarized by Doctor Edmund Noyes:

> Miss Hobbs came to Chicago after graduation and practiced in an office at 93 Washington Street. She married Mr. [James M.] Taylor, a painter in the Northwestern Railway car shops, and taught him to practice dentistry.
>
> I bought her office November 1, 1867 . . . and Mrs. Taylor and her husband went to Lawrence, Kansas, where they practiced many years and died there.[17]

Doctor Taylor (Fig. 2) and her husband arrived in Lawrence in December, 1867,[18] opened joint offices at 98 Massachusetts Street[19] and soon developed a lucrative practice.

She was active in fraternal organizations and became a member of the Rebekah Lodge (Odd Fellows) on June 9, 1871. She was a charter member of the Adah Chapter of the Eastern Star Lodge in 1876 and

[1] Commencement Exercises, Ohio College of Dental Surgery. *Dental Register*, 20: 145, (March) 1866. Three years before her death, Doctor Taylor gave her diploma to Doctor Edward Bumgardner, who in turn presented it to the Kansas State Historical Society after her demise. It is now in the Archives of that Society at Topeka, Kansas.

[14] Lucy B. Hobbs. The Use of the Mallet. *Dental Register*, 20: 483-486, (November) 1866.

[15] See footnotes 2 and 3.

[16] W. C. Simons, Editor, *Lawrence Daily Journal-World*, Lawrence, Kansas. Personal communication, June 10, 1950.

[17] Edmund Noyes. Pioneer Women Dentists. *Dental Summary*, 45: 943-944, (November) 1925.

[18] See footnote 3.

[19] Holland's *Lawrence City Directory*, 1868-1869, p. 77.

Fig. 2

LUCY HOBBS TAYLOR

This photograph was made in the W. H. Lamon Studio in Lawrence, Kansas. This studio was in existence from 1866 to 1873. Since Doctor Taylor moved to Lawrence late in 1867 when she was thirty-four years old, it can be assumed that the portrait represents her age between thirty-five and forty. (Photograph in the collection of the Library of the History of Medicine, University of Kansas Medical Center, Kansas City 3, Kansas.)

was active in the G.A.R.[20] Childless, she was able to devote much of her time to the welfare of these organizations and to participate in civic enterprises.

Later, tragedy was visited upon Doctor Taylor when she lost her husband in 1886. She continued to practice, but devoted more and more of her time to her lodge and civic activities, and practiced only enough to keep her time occupied. A few years before her death she ceased practicing entirely and remained in retirement at her home at 809 Vermont Street in Lawrence. She died on October 3, 1910, following a cerebral hemorrhage, at the age of 77.[21]

Doctor Taylor's life was a busy and useful one, and former patients and friends recall her with kindness. Her place in dental history is secure as the individual who conquered prejudice and precedent and prepared the way for women to become practitioners of the science and art of dentistry.

[20] W. R. Gorrill, D.D.S., Lawrence, Kansas. Personal communication, June 6, 1950.
[21] *Lawrence Daily Journal*, October 3, 1910, p. 6.

HORNER'S SYNDROME, AN AMERICAN DISCOVERY

BRUNO KISCH

In preparing the material for a now completed biography and bibliography of the famous anatomist and physiologist, Robert Remak (1815-1865), I found a very unexpected fact. That which today is called Horner's syndrome in clinical ophthalmology was observed with classical exactness, correctly interpreted, and, the description published by three American authors in a booklet in Philadelphia in 1864. No doubt the unfamiliarity with American literature in those days led the medical world in Europe to the conviction that Horner was the first to discover and explain these signs correctly and therefore deserved that the syndrome bear his name.*

In 1855, in pursuit of his studies on the autonomic nervous system, Remak published a paper in the Berlin medical weekly, *Deutsche Klinik* (vol. 7 p. 294). He reports there on the effect of cutting the cervical sympathetic nerve in the cat, dog, rabbit, guinea pig, and sheep. The effect was a myosis, a narrowing of the palpebral fissure due to a ptosis of the upper and slight elevation of the lower eyelid and a prolapse of the nictitating membrane. All this happened only on the homolateral eye. Electric stimulation of the peripheral part of the cut cervical sympathetic nerve made all these symptoms disappear. The latter part of the experiment could be repeated on the same animal time and again.

Of course, this experimental observation, excellent in its details, was not an original discovery of Remak; but neither was it the discovery of the Swiss ophthalmologist, Johann Friedrich Horner, with whose name this syndrome, as a clinical entity, is connected to this day.

J. F. Fulton in two excellent papers (1, 2) dealt with the predecessors of Horner's discovery.

My own checking on the subject (3) revealed the following: After the well-known first experimental observations of Parfour du Petit (1727), the problem of the influence of the sympathetic nerve on the eye was repeatedly mentioned in the literature; S. Biffi's (of Milano) doctoral thesis (Pavia 1846) is to be cited here. In the same year Ruete, Pro-

* The only quotation of this publication of the American authors was found in the book by Eulenberg and Guttman (4) (1873) and in the doctor thesis of Nicati (6) a pupil of Horner (1873), who may have known it through the publication of Eulenberg and Guttmann, which he quotes.

fessor at the University of Göttingen, wrote an article on "Physiology Applied to Ophthalmology" for Wagner's *Handwörterbuch* (III/2 p. 234, 1846). On the basis of clinical and experimental experiences he states that the pupil becomes wider if the sympathetic nerve is stimulated, but smaller if the sympathetic nerve is paralyzed. He compares these effects with the nerve influence on the heart.

Budge and Waller (*Compt. Rend. Acad. d. Sc.*, Paris 33: 370, 1851, and 34: 164, 1852) in animal experiments showed constriction of the pupil after cutting the homolateral sympathetic nerve, but also the opposite effect, when the nerve was stimulated. They made the latter experiment also on the head of a newly decapitated criminal.

A very thorough observation of the effect of cutting as well as of stimulating the cervical sympathetic nerve in animals was recorded by Claude Bernard in 1852 (*Compt. Rend. Acad. d. Sc.*, Paris 4: 155, 168, 1852, and 5: mém. 77, 1853, *Gaz. méd. de Paris*, p. 75, 256, 1852).

These experiments were unquestionably known to Remak. He met Claude Bernard personally at that time (1852) in Paris. Their relationship was a very friendly one. Bernard presented Remak's paper on the motor effects of the "grand sympathique" at a meeting of the Paris Academy on August 6, 1855, and Remak dedicated his book on methodical electric stimulation of paralyzed muscles to Claude Bernard in the same year. Remak quotes both Petit's and Bernard's findings (the years given are 1712 and 1849) in his paper.

New in Remak's observation was the influence of the sympathetic nerve of the nictitant membrane and the emphasis on the tonic effect of the sympathetic nerve on striated muscles which, according to Remak, have a double innervation. Of interest, also, is his remark that he used to demonstrate this experiment to his students in his lectures on experimental pathology. More and more clinicians now became aware of the importance of the observed facts. But these were singular instances only (4). Heineke in Greifswald (1860) made a pertinent observation in a patient with a tumor on the left side of the neck. Verneuil in Paris in 1864 observed myosis, heat, congested vessels and sweating on the side of the face where a tumor of the parotid gland gave reason for ligating the carotid artery. Demme in 1862 saw mydriasis and exophthalmus in a patient with goiter. Finally, in 1863 Weir Mitchell, Morehouse and Keen (5) in this country observed with masterly exactness, and published in 1864, an extremely interesting case, where a gunshot penetrated the right side of the neck of a soldier and led to the development of a syndrome exactly as described by Horner six years later. Because this contribution

of the American authors seems to be entirely forgotten, we quote from Weir Mitchell, Morehouse, and Keen's book.

On p. 40 the authors describe their findings in the patient, a 24-year-old soldier, at the time when the gunshot wound had been healed for some weeks, as follows: "The pupil of the right eye is very small, that of the left eye unusually large. There is a slight, but very distinct ptosis of the right eye and its outer angle appears as though it were dropped a little lower than the inner angle. The ball of the right eye looks smaller than that of the left. This appearance existed, whether the eye was open or closed and gave to the organ the look of being tilted out of the usual position. The conjunctiva of the right eye is somewhat redder than that of the left and the pupil of the right eye is somewhat deformed, oval rather than round . . . the right eye having become myopic." It was observed that when this patient walked around in warm weather "his face became distinctly flushed on the right side only and pale on the left." He felt pain and red flashes in the right eye. In repose no difference was found in the temperature of the two sides of mouth or ear. After five months, the patient was dismissed from medical care to return to his military duties. At that time, nearly all of his peculiar symptoms having disappeared, the clinical study came to an end. In discussing this case the authors (1864), to stress their point that all the observed signs are due to a lesion of the cervical sympathetic nerve, emphasize all the pertinent similar symptoms already known from the literature, as being similar to the effect of cutting the sympathetic nerve in animal experiments. They also discuss all other possibilities which may be contributing factors for such symptoms, for instance spinal concussion. But their final conclusion reads literally: "We ourselves are of the opinion that this was a case of injury of the sympathetic nerve and if so it is probably the only one on record." The headline of this chapter of their book reads: "Wound of the Sympathetic Nerve," and they say in the introduction to the case report: "During our long connection with this hospital we have encountered one single case of lesion of the sympathetic nerve."

The report just discussed surely needs no further comment from the viewpoint of medical history concerning its claim for priority. The mentioned myopia of the eye is noteworthy.

It only remains to be seen who were the three authors who really discovered what today is called Horner's syndrome and how the clinical picture immediately was recognized by them as paralysis of the cervical sympathetic nerve and as a parallel in human pathology to the experi-

mental findings of Petit, Claude Bernard, and other physiologists interested in the function of the sympathetic nerve.

According to the different medical biographical dictionaries the following is known concerning the authors, and these data are supplemented by the preface to their book on gunshot wounds. Of course the most famous of the three was Silas Weir Mitchell the recognized leader of American neurology. He was born February 15, 1829, in Philadelphia, Pennsylvania, and graduated in 1850 from the Jefferson Medical College where his father was professor. In 1851, after returning from a trip abroad for his further education, he settled in Philadelphia, at first as assistant to his sick father. In the following decades he made important contributions to medicine. All his life he was interested in the crystal formation of hemoglobin. In 1860 he wrote a treatise on the venom of the rattle snake, and when the civil war started, he became acting Assistant Surgeon in the Union Army. During that time he became especially interested in nerve physiology and pathology and the book on gunshot wounds appeared in a somewhat elaborate new edition in 1872 under the title, *Injuries of Nerves and Their Consequences*. Important also was his book entitled *Wear and Tear*, which appeared in 1871 and through which he became a protagonist of modern education in which play and bodily activities found a just emphasis in addition to studying and work. He published not less than 119 neurological papers and books and 52 publications from the fields of pharmacology, physiology, and toxicology. In addition he was a very prolific writer of poetry and fiction. He died January 4, 1914, in Philadelphia.

The second among the three authors of the book on gunshot wounds was George Read Morehouse. He was born March 25, 1829, at Mount Holly, New Jersey. He was not only the same age as Mitchell, but he too studied at Jefferson Medical College at the same time as Mitchell did and also settled in 1851 in Philadelphia. He died on November 12, 1905.

The third co-author, younger than the two others, was W. W. Keen. He was born January 20, 1837, in Philadelphia. From 1862 up to 1864 he was Assistant Surgeon and collaborator of Mitchell and Morehouse in Philadelphia; he travelled through Europe from 1864 to 1866 for his further education after which time he settled as a physician in Philadephia and became a teacher of pathological anatomy in Jefferson College, where he was professor of surgery from 1889 until 1907. He died at the age of 95 in 1932, famous as a brain surgeon and pioneer of neurosurgery.

During the Civil War Dr. William A. Hammond, whom Mitchell calls "a genius, alike enterprising, intelligent and laborious," was Surgeon General and ordered the specialization of different hospitals under his command in different special fields of medicine. In May 1863, according to his order, certain wards of the United States Army Hospital in Christian Street, Philadelphia, were set apart for the treatment of disease of the nervous system. Mitchell and Morehouse were placed in charge of the wards, and Keen was subsequently added as resident surgeon. This was the beginning of the collaboration of the three physicians, which resulted in the publication, among others, of the book on gunshot wounds.

The problem of how a military surgeon at that time had the clear vision to understand the observed syndrome and not to miss any of its details and its relation to experimental medicine is answered by the fact that Mitchell, during the year between his graduation and his settling as a physician, from 1850 to 1851, spent his time studying in Paris. He studied mainly with Claude Bernard and with the microscopist, Charles Philippe Robin, who contributed important studies in the field of microscopical neurology, which may have influenced Mitchell's future by arousing his special interest in neurology. But there can be no doubt that he witnessed in Claude Bernard's laboratories the latter's experiments on the effect of cutting and stimulating the cervical sympathetic nerve, which at that time occupied the interest of Claude Bernard to a high degree, and which were published in the following year, 1852, by Bernard.

When thirteen years later Mitchell met the soldier with the paralyzed cervical sympathetic nerve, he must immediately have thought of the experiments he had witnessed in Paris, and he thus became the discoverer of the clinical syndrome in question.

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MEDICO-HISTORICAL NEWS AND ACTIVITIES

ANNOUNCEMENTS

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

Award of Medals

At its twenty-fourth annual meeting in Baltimore, May 3-5, the American Association of the History of Medicine, upon recommendation of the Committee on the William Osler Medal (Dr. Iago Galdston, chairman, Dr. Sanford V. Larkey, and Dr. Benjamin Spector) awarded the William Osler Medal for the best student essay to Joseph A. Vasselli, a fourth-year student at the University of Rochester School of Medicine, Rochester, N. Y., for his essay on "A Pestilence Census-Taker in New Jersey." Awards of honorable mention were made to George E. Wells, III, a student at the Johns Hopkins University School of Medicine, for his essay on "Perinatal Pathology: A Short History," and to Jerome Roy Cornfield for an essay on "Waldo Irving Burnett, Early American Histologist."

No award of the William H. Welch Medal "for particular contributions of outstanding scholarly merit in the field of medical history" was made.

NATIONAL NEWS

Army Medical Library

For its May exhibit, the Army Medical Library designated a recently acquired collection of medical diplomas and certificates. The older diplomas are from Italian universities; the remainder consists of eighteenth and early nineteenth century English certificates (Army Medical Library *News*, May, 1951).

Chicago

The Society of Medical History of Chicago announced an open meeting on April 10, 1951, with 10-minute addresses by:

Ilza Veith: "A note on acupuncture"
Lawrence and Sonia Saxon: "History of Cook Co. Hospital"
Robert H. Kyle: "The history of cardiac drugs"
Joseph H. Kiefer: "The history of lithotomy"
David J. Davis: "A medical history of the four voyages of Columbus"
Fred Stenn: "The genius of John Hunter"

Ernest E. Irons is the president of the Society, and George H. Coleman the secretary.

Galveston

Dr. Henry R. Viets of Boston plans to spend a week each semester in Galveston for conferences with the staff and students of the University of Texas Medical Branch which has appointed him lecturer in neurology and in historical and cultural

medicine (*J.A.M.A.*, May 19, 1951, p. 266). Dr. Viets was president of the American Association of the History of Medicine in 1948-50.

Kansas City, Kan.

The School of Medicine of the University of Kansas announced the second course of the Clendening Lectureship on the History and Philosophy of Medicine for April 24 and 25, 1951, with Dr. Chauncey D. Leake as the speaker on "New generalities from old Egyptian medical papyri" and "The Hearst medical papyrus."

New York

The New York Society for Medical History announced a meeting for April 26, 1951. The program lists the following addresses:

William Stahl: "Vivisection in Alexandrian times"
Claude E. Heaton: "The earliest clinical (bedside) teaching of medicine in New York City"
Bernhard W. Weinberger: "Some aspects of dentistry in America up to the middle of the nineteenth century"

The Mount Sinai Hospital Seminar in the History of Medicine on April 17, 1951, listed as speakers:

Saul Jarcho: "Observations on the history of smallpox"
Solon S. Bernstein: "The influence of smallpox on the American Revolution"
Discussion: Max Ellenberg

Ohio

The Committee on Medical History and Archives of the Ohio State Archeological and Historical Society announced its annual meeting for April 28, 1951. Dr. Linden F. Edwards presided over the following program:

August Mahr: "Indian materia medica and therapy in the Northwest Territory"
Gilbert Dodds: "Medical men of the Ohio Indian wars, 1790-1796"
Robert L. Alexander: "Medicinal springs and spas of Ohio"
Jonathan Forman: "Pathology in the Medical College of Columbus"
Carlos I. Reed: "Development of the teaching of physiology in Ohio"
Linden F. Edwards: "An unusual physician's notice"
Robert G. Paterson: "Report of Committee activities"

Philadelphia

The Section on Medical History of the College of Physicians of Philadelphia devoted its meeting on April 19, 1951, to the late Francis R. Packard and the 200th anniversary of the Pennsylvania Hospital. The speakers were:

Frederick Fraley: "The personal side of Dr. Packard" (opening remarks by Chas. F. Mitchell)
George M. Coates: "The professional side of Dr. Packard" (opening remarks by Robert J. Hunter)
Edward B. Krumbhaar: "Dr. Packard's influence on the study of medical history and the history of the Pennsylvania Hospital" (opening remarks by Walton B. McDaniel, 2nd)

NEWS FROM ABROAD

Brazil

Under the sponsorship of the Federação National de História da Medicina e Ciências Afins, the Instituto Brasileiro de História da Medicina has convoked the First Brazilian Congress of the History of Medicine to be held in Rio de Janeiro, July 14-21, 1951. The official subject of the congress will be the history of medicine and kindred sciences in Brazil from the time of discovery to the 19th century. There will be the following six sections: History of Medicine, History of Pharmacy, History of Dentistry, History of Chemistry, History of Veterinary Medicine, and Miscellaneous Subjects. The central organizational committee includes as president: Prof. Ivolino de Vasconcellos; vice presidents: Dr. Paulo Arthur Pinto da Rocha and Prof. Alvaro Dória; secretary general: Dr. Ordival Gomes; secretaries: Drs. Severino Cabral Sombra and Mario Ferreira França; treasurer: Dr. Armando R. Bandeira.

India

A symposium on the history of sciences in South Asia was held in collaboration with the UNESCO South Asia Science Cooperation office in Delhi, November 5-7, 1950. The discussions included the history of medicine, and Lt. Col. B. L. Raina of the India Army Medical Corps read a paper on "The study of medical history in India," urging the organization of an Indian association devoted to this subject.

BOOK REVIEWS

F. Sherwood Taylor. *A Short History of Science and Scientific Thought.* With Readings from the Great Scientists from the Babylonians to Einstein. New York: W. W. Norton and Co., Inc., 1949. 368 pp. Ill. $5.00.

This is a slightly enlarged edition of Mr. Taylor's *Science, Past and Present* (London: Heinemann Ltd., 1945). It has been revised for the American public by having the French and German extracts presented in English, and by the addition of some new material. These four new chapters, (X, XVII, XIX, XXI) are on the study of gases, the atom in the nineteenth and in the twentieth, century, and on waves and particles. In addition, the first chapter on the study of the history of science has been compiled largely from the material in the Preface of the English edition and from the first sentence of its opening chapter on the beginnings of science (chapter II in the American edition). Mr. Taylor has also added to the excerpts at the close of chapter XVI on the acceleration of transport, an extract from a British government publication on the use of the atomic bomb at Hiroshima and Nagasaki. Entitled "Thirty-three Years After," this follows a prophetic account written in 1912 on the possibility of the bombing of cities.

The great value of Mr. Taylor's book lies in his combination of a concise, straightforward history with a wealth of illustrative material drawn from the most varied sources,—manuscripts, photographs, sketches, prints, diagrams,—together with three time-charts. One chart shows the main periods in the history of science, a second, science in the middle ages, and the third, the foundations of modern science (frontispiece, figs. 16 and 28). The author frequently adds an explanatory or critical comment to the extracts and illustrations which aid the reader to seize the salient points of a technical matter or to contrast or compare one account with another, an exceedingly useful device. These extracts from the sources give life and vividness to what of necessity has to be a highly condensed account of science through the ages. In the American edition are included eight new plates and eleven new figures among the numerous illustrations. These new plates may be easily identified, unfortunately, as they are sharply and clearly reproduced, while the plates reprinted from the earlier book are pale and indistinct in comparison with their English versions (see, for example, plates II and XIII in the two editions).

The development of scientific work from the days of the earliest flint-makers down to the fifteenth century occupies about one-quarter of the book. That background is essential, in the reviewer's opinion, for the proper understanding of the scientific revolution of the sixteenth and seventeenth centuries. Another hundred pages bring the reader to the nineteenth century which, with the first half of the twentieth, takes up nearly all of the latter half of the book. Two chapters, on a discussion of science and its functions, conclude the book,—an unusual place for these chapters that ordinarily preface histories of science, but a logical one for the general reader previously uninformed about the development of science. Mr. Taylor has wisely in-

cluded some indication of the development of medical science and its applications through the ages, along with that of physical science. Medicine seems to have a much greater interest for the average reader as a rule than do the more mathematical and technical developments of the other sciences; its history seems equally as valuable in illustrating ignorance, prejudice, and the struggles necessary to overcome obstacles and advance scientifically.

The author, the successor of the late Mr. R. H. Gunther as Curator of the Museum of History of Science at Oxford, himself an Oxford man and a classicist, wrote his doctoral thesis for the University of London on Greek alchemy. Ever since, the study of alchemy, early chemistry, and scientific history in general has occupied him and has been the basis of most of his many books. His *The Alchemists, Founders of Modern Chemistry* was published in the Life of Science Series in the United States last year, at the same time that this *Short History of Science* was brought out by Norton and Co.

Perhaps that fact may help to account for a major slip in the *Short History*. Unfortunately, the list of further reading suggested for the various chapters has been reprinted without change from the smaller English version (*Science, Past and Present*). Consequently the chapter numbers heading the suggestions do not conform with those of the American *Short History*, nor are there supplementary readings for the four additional chapters in the latter. Whatever the explanation for this slip, it should be remedied without fail in the next edition. Incidentally, the reference for Pasteur's account of his experiments has been omitted (p. 207) in the American version though it is given along with the original French extract in the other (p. 164).

Despite this serious defect, the *Short History* should prove very useful. It is a particularly valuable idea to combine within the covers of one not over-large book a concise summary of scientific history together with extracts and illustrations of the sources upon which that summary is based. The style of the book is clear, the vocabulary non-technical. The scientist may find the explanations oversimplified, but the general reader finds them both intelligible and fascinating. The illustrations catch a reader's attention and he turns back to read the book straight through with great interest. That has happened twice already with this reviewer's copy. Students also find its brevity and clarity helpful in straightening out the main lines of change in science and in learning what to look for further and where to go for further information. It should serve also in giving a thoughtful reader some of the basic information he needs to appreciate and enjoy such a book as Herbert Butterfield's *The Origins of Modern Science* (G. Bell and Sons, Ltd., London, 1949), published last year also by the professor of modern history at Cambridge University, and the best book thus far in this general field.

DOROTHY STIMSON

J. Joaquin Izquierdo. *Raudón, Cirujano Poblano de 1810.* Mexico, D. F.: Ediciones Ciencia, 1949. 299 pp. Ill. $5.50, U. S.

This account of the career of the surgeon Juan Nepomuceno Raudón is presented against a carefully delineated background of the political history of his time, together with the stages of medical and surgical progress. From a huge number of documents, reproductions of many of which illustrate the book, Dr. Izquierdo selects the salient facts about hospital practice in the early nineteenth century, sanitary laws, epidemics, and the activities of one of Mexico's old and honored medical schools.

The period of transition from a colonial to a new and independent nation had the constant menace of frequent and devastati g epidemics emphasized by the ancient hostility between physician and surgeon. Much of that depreciation of surgeons as less than physicians, inherited from the "barber-surgeons" of the renaissance, was due to the attitude of the Royal and Pontifical University of Mexico and the Royal Tribunal of the Protomedicato, which hampered the development of the new Royal School of Surgery. Also from the very beginning, the native born Mexicans were discriminated against in favor of Europeans for all posts of honor and authority.

Juan Nepomuceno Raudón was born in Puebla de los Angeles, August 8, 1788. He was sent to school at seven. His older brother elected the army as a career, therefore Juan must find another vocation on completion of his secondary education. In spite of the discrimination against the profession, he decided on surgery, influenced largely by Don José Gonzalez, surgeon of the Royal Hospital San Pedro, who offered to direct his work there.

The Hospital San Pedro, founded in 1543, was in continuous existence till 1917. A large building of 400 beds, adjoining the Church of San Pedro, its two stories were built around a square patio, and its spacious wards with vaulted ceilings were divided by partitions so that different types of maladies were carefully segregated. This, with its excellent ventilation accounted for its surprisingly low death rate. It was well supplied with proper equipment and had a fairly adequate income. In treatments its staff frequently departed from the traditional purgings and bleedings that were routine for centuries. It was rated the best hospital in Mexico.

Since there was no organized medical school in Puebla, Raudón began his studies following the general plan of contemporary schools in Spain, under the direction of the surgeon, Don José Gonzalez, by reading the authorized texts and going rounds in the hospital for practical experience. The Spanish charters required dissection, but little of this was done. Autopsies were performed, but there was no formal study of anatomy. Raudón followed the vogue with plates, skeletons, and wax figures, till he could go to Mexico City for real study in the amphitheatre there.

Courses in physiology and hygiene were little or no better. There were no clinics in the modern sense. Surgery at this time included fractures, wounds, inflammations, edema, diseases of the mouth, ears, eyes, cancer, hernia, etc. Wounds were coated with oil, balsams or hot turpentine instead of being allowed to heal clean. Surgeons usually had to provide their own instruments; but when Raudón

began his course at the Hospital San Pedro they did have a well equipped operating room, though few operations were performed there. Delivery was in the hands of midwives, partly from modesty, partly from tradition, though an ordinance of 1804 required the presence of a surgeon in complicated presentations. Raudón got some experience as aid to surgeons, but little was known of the anatomy or physiology of pregnancy.

Raudón went to Mexico in 1808 to complete his studies in anatomy and operations in the Royal School of Surgery. He was fortunate in finding there an excellent and capable director. In 1809 he passed his practical and theoretical examinations satisfactorily, but the Protomedicato would issue him only the simple surgeon's license, not that of Latin Surgeon, which implied more training. He had had this training, but this license was reserved only for those who had also studied in Spain. Several of Raudón's professors challenged the Protomedico on that, but to no avail. The license he received in 1810 bound him to treat the poor gratis, assist in childbirth, contagious diseases and wounds. He must not induce abortions, run a barbershop or prescribe and compound medicines. He returned to practice in Puebla.

With the political upheaval in Spain in 1810, insurrections broke out in Mexico, and war induced maladies and injuries filled the hospitals. Typhus and tabardillo became epidemic, and in 1813 Puebla set up a Sanitary Council on which Raudón served efficiently. In 1814 small-pox invaded the country; vaccination was enforced and Raudón inoculated dozens of children daily.

Between 1820-1824 came politico-social changes in Mexico, and finally an independent republic. In Puebla the Sanitary Board established regulations for city and hospitals. By 1822 there were 34 professors of medicine and surgery, all natives of Puebla, among whom was Juan Nepomuceno Raudón, living there with his wife and five children. In 1824 the physicians and surgeons organized into the Medico-Chirurgical Academy for scientific discussion.

Epidemic fevers reached Puebla in 1823 through soldiers from Mexico. The Sanitary board appointed Raudón and two associates to study the disease, which they diagnosed as mild scarlatina with benign measles. It was contagious and conferred immunity from future attacks. By 1825 the epidemic changed from mild to mortal, and Raudón lost his brother and his newborn child, followed a few days later by his wife.

A widower with five young children, Raudón responded to the offer of a post in Tehuacán, a small town of 4500, not far from Puebla, where they had no resident physician or surgeon. He was permitted twenty-five private patients in addition to his salary from the town. He never received the full amount yet stayed on. Here he organized a Board of Sanitation and exerted some control over the one pharmacy. Small-pox reappeared in 1827 but the town had no vaccine and was unable to get it.

Since 1825, Raudón and others had worked for fusion of medical and surgical education, and Puebla finally passed a law to this effect in 1831, combining such training in the State College and the Hospital San Pedro. It was ineffective, but Raudón derived one benefit; he was finally given his license as medical-surgeon. He had exercised both functions since his coming to Tehuacán.

Cholera appeared in 1833 and spread with devastating speed. Raudón and his

Sanitary Commission formulated regulations, but the epidemic was too violent to permit them much effect. Tehuacan lost 1134 of its citizens. The doctor stayed there in the affection and confidence of the people, continuing regular vaccinations but unable to cope with the one deplorable drugstore, since no other pharmacist could be obtained.

His sons followed military careers, his daughters were married, and since all were provided for he took religious orders but retained his professional vocation. In 1841 he was listed as a priest living near the chapel of Calvario, a private benefice, where he could serve his sick poor. And there he died of an apoplectic stroke in 1843. He was entombed in this chapel, which though now a ruin, still contains the bones of the first medico-surgeon to serve Tehuacán.

GEORGIANNA SIMMONS GITTINGER

HENRY E. SIGERIST [editor]. *Letters of Jean de Carro to Alexandre Marcet, 1794-1817*. With an Introduction and Notes. Supplements to the Bulletin of the History of Medicine, No. 12. Baltimore: The Johns Hopkins Press, 1950. vii + 78 pp. Frontispiece. $2.00.

The twenty-two letters of Jean de Carro to Alexandre Marcet published in this booklet are part of the Henry Barton Jacobs' Collection, the treasured possession of the William H. Welch Medical Library of the Johns Hopkins University in Baltimore. Both Carro and Marcet came from Geneva, Switzerland. After having studied medicine in Edinburgh, Carro went to Vienna; Marcet, after studying at the same university, settled down in London for a few years. As one can see from the index, their letters allude to many subjects (medical, political, social) but their main interest lay in all sorts of information about early vaccination, treatment of goiter by iodine, and sulfuric fumigation for skin diseases. The book has many interesting notes by Henry Sigerist and an appendix in which Carro voices his appreciation of Joseph and Johan Peter Frank.

To the information given by Henry Sigerist on Alexandre Marcet we could add that the latter was interested not only in chemical experiments but also in physical. In addition to the papers quoted by Sigerist, Marcet wrote:

1) Experiments on the Production of Cold by Evaporation of the Sulphurate of Carbon. London, 1813, 4 pp.

2) On the Specific Gravity and Temperature of Sea Water in Different Parts of the Ocean. London, 1819. 4° 48 pp.

3) Some Experiments and Researches on the Saline Contents of Sea Water, Undertaken to Correct and Improve the Chemical Analysis. 1822, 4° 9 pp.

François Marcet, his son, became Professor of Physics at the University of Geneva and wrote a *Cours de Physique Expérimentale*, Genève et Paris, 1832, in 8°, which has had five editions. William Marcet, his grandson, an M. D., published (among others):

1) *Recherches sur les principes immédiats de l'urine de l'homme.* Genève, 1852.

2) *On the Composition of Food and How It Is Adulterated, with Practical Directions for Its Analysis.* London, 1856.

3) *Clinical Notes on Diseases of the Larynx.* London, 1869.

4) *The Principal Southern and Swiss Health Resorts, Their Climate and Medical Aspect.* London, 1893.

Alexandre, the son of the latter, was an industrialist in London and was the last of the name. His heir, Horace de Pourtales, sold the letters of Alexandre Marcet to Paul Louis Bader, bookseller, 20 Grand rue, Geneva, Switzerland, where the greatest bulk is still waiting for an "amateur." I spent a few hours looking at them and I could not find any by Jean de Carro. However, from a bookseller of Zürich (L'Art Ancien—Bleicherweg 20) I could find in a list, No. 134, of advertised autographs a letter of Jean de Carro to Marcet, dated 17 I. 1804, which is not part of the collection edited by Henry Sigerist. Carro writes:

Je languis de savoir si tu as reçu mon ouvrage sur la vaccination orientale et le paquet que je t'ai prié d'expédier au Dr. Waterhouse de New Cambridge en Amérique. Je te refère au Dr. Jenner pour toutes les nouvelles ulterieures relatives à la prétendue faculté antipestilentielle de la vaccine. Madame de Carro vient de mettre au monde un candidat pour la vaccination. C'est un garçon très bien portant. J'aurais désiré une fille, mais il faut se soumettre. . . .

Among the letters I saw at Bader's bookshop, I found a few letters of Nicolas Théodore de Saussure. In one of them he writes of his appreciation of one of Marcet's essays:

J'ai profité de cette occasion pour vous remercier bien sincèrement du plaisir que m'a fait votre analyse of the Brighton Chalybeate. Je n'ai point vu encore de travail analogue fait (avec) autant de méthode, de clarté, et une application aussi bien entendue des nouvelles découvertes, à l'analyse des eaux. Vous ne serez point sans doute resté en si bon chemin et vous aurez fait de nouvelles recherches. J'attends de votre amitié que vous me les communiquiez. La rareté de nos communications avec l'Angleterre (this letter is from September 8, 1806 during the Napoleonic era) me rend extrêmement avide des découvertes qu'on peut y faire. Pour en revenir au Brighton chalybeate, il me semble que les analyses nouvelles et accessoires que vous avez faites de quelques sels pour servir à votre analyse des eaux, auraient pu inspirer encore plus de confiance si vous eussiez opéré sur de plus grandes quantités. Vous avez mis, il est vrai, un soin tout particulier au dessechement de vos filtres. Mais si vous, filtrez une dissolution saline (déja antérieurement filtrée) au travers de deux filtres égaux en poids, enboités l'un dans l'autre et que vous les fassiez sécher uniformement, vous trouverez après le dessechement que les deux filtres ne sont plus égaux en poids. Le filtre extérieur est souvent plus pesant que l'intérieur. La raison en est que l'évaporation se faisant moins abondamment sur ce dernier, même pendant la filtration, le sel se dépose en plus grande quantité sur le filtre extérieur et les lavages qui sont toujours plus ou moins imparfaits n'obvient point à cette source d'erreur. On ne la domine qu'en opérant sur de grandes quantités. Vous savez que j'aime à critiquer, et à tort ou raison je n'ai point voulu me priver de ce plaisir, mais je vous offre un beau champ pour riposter.

Je m'occupe toujours à la campagne de le chymie des vegétaux. L'examen, l'analyse et la détermination précise de leurs principes est l'objet bien difficile de mes recherches. Je ne vois presque point de nos amis communs en été. . . .

RAYMOND DE SAUSSURE

RENE J. DUBOS. *Louis Pasteur, Free Lance of Science.* Boston: Little, Brown and Company, 1950. xii + 418 pp. Ill. $5.00.

The pupils and kinsmen of Pasteur who recreated for us his image 30-50 years ago were fascinated primarily by his devotion as a son and pupil, his patriotism, his warmheartedness, the dramatic nature of his experiments, his logic, and his genius of detail observation. The little book of Mondor (reviewed in this *Bulletin* 21: 128, 1947) indicated that—important as these aspects remain to us—other traits in the universe that was Pasteur have become more relevant to our generation. Dr. Dubos' masterly book on Pasteur, the fighter, the "romantic," who was concerned with the basic nature of life, the man who was pure and applied scientist in one, is the full expression of these new tendencies.

Dr. Dubos therefore starts with a chapter on the "wonderful century" when science transgressing its role as natural philosophy became an actual power transforming society; a century for which Pasteur is so representative. Pasteur's biography proper is condensed into a single chapter, called characteristically enough "The Legend of Pasteur." In ten chapters Pasteur's work is reviewed, the well-known chain of triumphs from molecular dyssymmetry through fermentation to the germ theory of disease and vaccination. Throughout this analysis the author is always interested in the general implications of Pasteur's thought and work, and in the mechanism of his discoveries. He shows e. g. that Pasteur's biological explanation of fermentation (somewhat improperly called vitalism by the author) was the fruit of a preconceived idea concerning the connection between molecular dyssymmetry and life.

One of the important results of Dr. Dubos' new approach is the demonstration that Pasteur's theory of fermentation was reaching far beyond fermentation of beer, milk, wine, etc., encompassing such phenomena as muscle activity.

That Pasteur did not create, in a similar vein, broad epidemiological concepts, was not because he was blind to all non-bacterial factors involved in infectious disease (as Koch and many early bacteriologists actually were), but because, according to Dr. Dubos, the practical goal of vaccination and the neccesity to convince a most painfully conservative medical profession absorbed completely the energies of his last years.

Dr. Dubos rightly stresses that Pasteur, though trained as a chemist, had *always* an eye for the biological implications of his work. Like his forerunners Dr. Dubos has unfortunately not probed into the influence of Pasteur's teacher, J. B. Dumas, as a possible source for this attitude, paradoxical indeed in a chemist of the period. But the "chemist" J. B. Dumas is, after all, through his early embryological work with Prevost, one of the fathers of modern biology.

Pasteur provides Dr. Dubos with an occasion for a whole chapter on the mechanism of discovery, a challenge to so many modern scientists (see e. g. the autobiography of the late W. B. Cannon). Dr. Dubos expresses his belief in the existence of a "mysterious process of intuition," different from logical development.

Pasteur's "philosophy," his "split" personality of a devout Catholic and an agnostic experimentalist form the subject of a last chapter which leaves room for further analysis of this problem.

It is a most fortunate and rare accident that Dr. Dubos, who is himself one of the outstanding microbiological discoverers of our period, had the interest and ability to write this book. He was able to infuse a most competent historical analysis with the special understanding and concerns of the productive scientist, creating thus a unique, very rich, and most worthwhile book.

ERWIN H. ACKERKNECHT

FREDERICK CLAYTON WAITE. *The First Medical College in Vermont: Castleton 1818-1862.* Montpelier: Vermont Historical Society, 1949. 280 pp. Ill. $5.00.

Anyone who read Frederick C. Waite's *The Story of a Country Medical College* (Vermont Historical Society. 1945) may well be assured that this new title represents the culmination of another difficult task. In this volume of 280 pages, more than one hundred of which are devoted to comprehensive catalogues of names, worth-while appendices, and an index of 727 entries, the author has assiduously sifted all the conceivably extant sources.

The purpose of the author was more than an intent to preserve the record of what to some historians was only an obscure country medical school. In the final paragraph of his text, Frederick Waite comments:

> I stated in the preface that my reason for undertaking the task of accumulating material and writing this volume was to give a basis for better appreciation of the role of country medical colleges in American medical education and medical practice in the nineteenth century. The reader must decide to what extent I have accomplished my purpose.

The author's preface defines a "country medical school" as an institution in a community of not more than 10,000 population. This is an arbitrary but reasonable line of distinction for purposes of differentiation between country and urban institutions. On this basis one-third of the one hundred medical colleges founded in the first half of the nineteenth century were country institutions when first established.

Doctor Waite's lament about the dearth of published information concerning the country's nineteenth century rural medical schools, except for his own writings, is not fully justifiable. The volume on the history of medical education to which he anonymously refers as having been "published in 1944" did give little more than four pages to the Castleton institution, but a large portion of its 487 pages is devoted to drawing from obscurity dozens of country and little known urban medical colleges, without offering a comprehensive history of any single school. Dr. Waite is entirely correct in pointing out the statistical errors of the *American Medical Directory,* a publication of the American Medical Association, in its treatment of the Castleton school.

Author Waite predicted that his narrative would be criticized for its paucity of documentation. His defense is: "A critic should know that comparatively little has been printed about this institution." Nevertheless, he remarks further that, "I believe a fair estimate is that I have consulted a thousand printed volumes in search for information about the institution and the persons connected with it, . . ." It would seem that out of one thousand items there might have been wisely gleaned

a worth-while selected bibliography. In a book which devotes so much space to appendices (96 pp.) a bibliography would not be out of its proper setting. Arranged at the end of thirteen of the fifteen chapters and Appendix A are eighty-three footnotes which compensate to some extent for a lack of more comprehensive documentation and bibliographical presentation. Some historical investigators and genealogical searchers will meet a measure of disappointment in the book.

The first fifty-eight pages of the volume are devoted to a most comprehensive historical background of the community of Castleton, the ancestry and personal history of the founding fathers, and the educational lineage of the Castleton grammar school and seminary.

There were three proprietors. Selah Gridley, 1770-1826, was a successful practitioner who, it appears, never held the M. D. degree. Dr. Gridley was prominent in the cultural and religious affairs of the community as well as the professional activities of organized medicine in Vermont. Well educated for his day and experienced as a teacher, he properly saw an opportunity to inaugurate formal medical education in Castleton, even though his professional training seems to have been limited to a preceptorial experience. At the height of his successful career he met with tragedy, which was followed by mental deterioration, divorce, and eventual death in obscurity.

Associated with Selah Gridley was Theodore Woodward, 1788-1840, who had studied under the famous Dr. Nathan Smith of Dartmouth, under whom he did not continue long enough to qualify for a medical degree. Later, because of his distinction as a surgeon and medical educator, he twice received honorary M. D. degrees, from Middlebury and Harvard. In his practice he complemented Dr. Gridley who had little taste for surgery. He carried the major administrative load of the institution for twenty years. Repeated epileptic seizures after the age of thirty-four gradually put an end to his professional career and terminated his life when he was fifty-two.

John LeConte Cazier, 1790-1863, was the third and least important member of this Castleton triumvirate. He contributed no funds to the founding of the school and his connection with it was brief. Although he did not remain long enough to earn a degree, Dr. Cazier's formal medical training was at the College of Physicians and Surgeons in Fairfield, New York. In 1816 the University of Vermont granted to him an honorary M. D. degree. He was known as Dr. Cazier, but there is no evidence that he ever earned or received a medical doctorate.

The motivation for founding the Castleton Medical Academy was quite the same as that which led up to the founding of many other country schools during the early decades of the past century. Several medical preceptors concluded it would be easier to discharge their educational obligations to their medical apprentices by pooling their lectures and demonstration efforts. Thus the incentive was found for an organization, though frequently informal at its inception, which came to appropriate the title of "school" or "college." The institution of Selah Gridley's founding was unique in that it used "academy" in its title.

The earliest documentary evidence of the founding of Castleton Medical Academy is a statement of articles of agreement between the three proprietors under date of February, 1818. The author discusses the first five years (1818-1822) as a period of growth and seeking for financial and academic performance. In 1822 the trustees of the Academy sought to have its name legally changed to Vermont Academy of

Medicine, a more comprehensive title, stimulated perhaps by the opening of a rival school at the University of Vermont.

The years from 1823 to 1827 are described as a time of growth and expansion. During this time the lecture term was increased from twelve to fifteen weeks. Also two reading terms (supervised study) of fifteen weeks each were offered. The faculty made a fruitless gesture at restoring some sort of a Latin requirement, a standard of pre-medical education all but forgotten by most American medical colleges by that time. A loose affiliation (started in 1820) was consummated with Middlebury College whereby it was possible for medical graduates to defend their theses on the Middlebury campus and receive their degrees from the College at the regular spring commencement. Middlebury, whose president became a trustee of Vermont Academy of Medicine, was then able to boast proudly of a medical department. This relationship, tenuous at its best, was largely a window dressing venture designed to give both parties prestige. The Academy trustees canceled the arrangement in 1827 and began conferring their own degree.

During the next decade, 1828-38, the Academy declined in attendance, quality of its instruction, and standard for graduation. The reasons for this intellectual erosion involve the health of Dr. Woodward, a bitter personal quarrel between the Academy and Dr. Benjamin Lincoln of the school in Burlington, and the destructive competition for students, so characteristic generally of that decade. Unpropitious and unexpected events brought about suspension of the school in 1838.

With the help of a one thousand dollar popular subscription and the renewed enthusiasm of business and professional men, the Academy was revived in March, 1840. In order to avoid confusion with a rival school, Vermont Medical College, at Woodstock, the Academy trustees changed the name of the institution to Castleton Medical College in November 1841. The enlargement of the faculty and plant improvements reflected prosperity during the early forties. In 1846 there was a peak enrollment of 154. Effective leadership during these encouraging years was in the hands of Dr. Joseph Perkins.

The decline of Castleton Medical College began in the late forties and persisted until its final demise in the winter of 1862. The reasons for the closing of this college are numerous. The most obvious are: lack of clinical facilities, shortage of anatomical material, and public criticism by the newly organized American Medical Association of schools attempting to give two lecture courses yearly. Competition, conflict of personalities, financial difficulties, and the popularity of sectarian medicine contributed to the confusion of the College's declining years.

With meticulous care Dr. Waite has assembled the names of 2,645 students who attended the all but four sessions accounted for. Of these, 1,425 received degrees (nineteen B. M.) in course. One hundred sixty-seven honorary degrees were given. The author's assembled figures on degrees in course granted by all New England medical schools shows Castleton at the head of the list with 275 more than Harvard.

Castleton's contribution to the medical needs of an expanding pioneer country are incalculable. Into the streams of westward expansion which moved through New England and into the Mohawk she fed her sons of Aesculapius. They leavened the lump of American progress. In carefully exploring this subject Dr. Waite has made another basic contribution to the medical and social history of the United States.

Wm. Frederick Norwood

RENÉ SAND. *Vers la Médecine Sociale.* Paris: J.-B-Baillère; Liège: Editions Desoer, 1948. 672 pp.

News was received recently that Dr. René Sand, for many years professor of social medicine at the University of Brussels, was retiring from his chair at the age of seventy-three. And at about the same time, the World Health Organization in Geneva announced that it was awarding the international Léon Bernard Prize (a medal and one-thousand Swiss francs), the highest distinction in the field of social medicine, to Dr. Sand. This is a reminder that his book has not been reviewed in this *Bulletin* as yet, and although it is so well known by now that it does not need any recommendation, yet it should be mentioned in this journal.

Dr. Sand is one of the great pioneers of social medicine. Through his writings, his teaching, his activities in the Belgian Ministry of Public Health he promoted the cause of social medicine relentlessly for half a century, and today he has the great satisfaction to see that medicine has broadened its scope in the way he anticipated it, that the field is recognized, that chairs are created in one country after another, a development in which he has taken a leading part. His writings cover a wide range of subjects. There is hardly a topic of hygiene, public health, and social medicine that he has not touched in some way or another, and he expounded his philosophy of medicine in several books notably his *L'économie humaine par la médecine sociale*, a book that had wide repercussions and was translated into several languages.

Whenever we wish to get a full understanding of a development in the midst of which we find ourselves and in which we are called upon to play our part, we endeavor to analyse it historically. Why is it that social medicine presents more acute problems today than in the past? What changes in society, in medicine, in man's general outlook are responsible for such a development? It is no wonder that Dr. Sand, who has a very keen understanding of history, tried to answer these questions and the result is the present book which at the same time is an important contribution to medical history and to social medicine.

What does Dr. Sand mean by social medicine? He explains it in the introduction. Individual medicine is the art of preventing and curing disease in individuals as isolated human beings. Public health has the same task but its object is the community, while social medicine addresses itself to individuals and classes whose conditions require special measures. A double barrier stands between the underprivileged class and medical services, preventive as well as curative, namely, ignorance and poverty. These very barriers make it almost impossible for this class to attain a normal standard of living and consequently also health. But at all times, charity, solidarity, social consciousness, the efforts of the people themselves endeavored to lower or remove these barriers, and as medicine from the very beginning worked toward such an end, it was always social. As the guardian of health, of life itself, of values that are fundamental to the individual and to society, medicine can fulfil its task only if it is at the same time individual, public, and social.

The purpose of this book is to trace the history of those elements of medicine which primarily constitute the field of social medicine, and this is done in a series of brilliant chapters on the history of the medical profession, of the hospitals, of

individual hygiene and public health, of social welfare institutions, of the fight against specific diseases and the protection of the health of certain groups—what in French is all included in the term *hygiène sociale*, but for which we have no corresponding word. Further chapters are devoted to the history of occupational diseases and the protection of labor, to the history of charitable services and social insurance, of the sciences of man in their relation to medicine; and the last chapter is a broad panorama of social medicine in the various countries and a discussion of its scope, tasks, possibilities and limitations, teaching and effect on human progress and on the welfare of the individual.

This is a remarkable book, original in concept and achievement. It tells a great deal that is not found in the usual histories of medicine and is particularly lively because the author while tracing historical developments never loses sight of present conditions and problems of the future. This book illustrates graphically the great value of the historical analysis for the elucidation of present problems of medicine, and after having read it we have a much clearer view of the nature and scope of social medicine.

HENRY E. SIGERIST

THE BULLETIN RECENTLY RECEIVED *

The Collected Papers of Adolf Meyer. Ed. Eunice E. Winters. Vol. II: Psychiatry. With an Introduction by Sir David K. Henderson. Baltimore: The Johns Hopkins Press, 1951. xx + 674 pp. Ill.

Chalmers G. Davidson. *Friend of the People*. The Life of Dr. Peter Fayssoux of Charleston, South Carolina. Columbia: The Medical Association of South Carolina, 1950. vii + 151 pp. $2.75.

Cyril Elgood. *A Medical History of Persia and the Eastern Caliphate*. Cambridge, at the University Press, 1951. xii + 617 pp. Ill. $10.00.

Harvey Graham. *Eternal Eve*. The History of Gynecology and Obstetrics. Garden City, N. Y.: Doubleday & Co., Inc., 1951. xx + 699 pp. Ill. $10.00.

Dean Putnam Lockwood. *Ugo Benzi*. Medieval Philosopher and Physician, 1376-1439. University of Chicago Press, 1951. xvi + 441 pp. $8.00.

Selected Writings of Sir William Osler, 12 July 1849 to 29 December 1919. With an Introduction by G. L. Keynes. Oxford University Press, 1951. xx + 278 pp. Ill. $4.00.

Tomorrow's Horizon in Public Health. Transactions of the 1950 Conference of the Public Health Association of New York City. New York, 1950. 109 pp. $1.00.

A. Earl Walker [editor]. *A History of Neurological Surgery*. Baltimore: The Williams & Wilkins Co., 1951. xii + 583 pp. Ill. $12.00.

* The *Bulletin* reserves freedom of decision as to the publications to be listed in this section.

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